



Diplomatic Group

BU Mechatronics

2023 January edition

INDEX



1. Team BU Mechatronics
2. Sites and production
3. Why to use electromechanical actuators
4. Applications
5. ISO EC*3 Series Electric Cylinders
6. ECF3 Series Electric Cylinders
7. ECP 4 series servo presses
8. Linear Modules LT*3 series
9. SMH-SCH Series Motors and Drives
10. Daikin & Diplomatic Group
11. At a glance
12. Product range
13. IO-Link
14. Our people

1. TEAM BU MECHATRONICS

BU MECHATRONICS

BU MECHATRONICS



The Mechatronics Business Unit is the division of Duplomatic MS specialized in mechatronic technology.

Duplomatic MS provides its expertise to integrate Linear Motion components into industrial automation processes.

Predictive maintenance in the smart factory can thus be easily managed through the use of products from the Duplomatic MS electromechanical line.

2. SITES AND PRODUCTION

PRODUCTION

Quality and reliability

ROSTA (TURIN)



1,200 sqm

Strada della Risera, 10/C
10090 Rosta (TURIN),
Italy

The production processes are aimed at two main objectives:

- the **quality** of the products
- compliance with **delivery times**



2. SITES AND PRODUCTION

DESIGN

Our solution to your
need

SULBIATE (MONZA BRIANZA)



550 sqm

Via Delle Industrie, 8
20884 Sulbiate
(MONZA BRIANZA),
Italy



Design and testing.
The Sulbiate site is focused on
product development and design.

The technical personnel has
specialized skills in mechanical
design, firmware development,
application development.



3. WHY TO USE ELECTROMECHANICAL ACTUATORS

ELECTROMECHANICAL ACTUATORS

ADVANTAGES

Reduction of energy consumption

Electric actuators consume one-tenth of the energy compared to the pneumatic cylinder

Increased productivity

Reduction of cycle times and downtime for maintenance.

Intelligent control and versatility of use

Quick management of machine set-ups with numerous variables required. Multiple positioning and constant control of the thrust force

Hygiene and cleanliness

Key features in the food and pharmaceutical sector.

Simplification of the system

Replacement of air pipes with single electrical cables, elimination of valves and air treatment systems

4 . APPLICATION EXAMPLES

Electric actuators are a valid alternative to pneumatic, hydraulic or mechanical handling systems. With these products it is possible to achieve high values of repeatability, positioning and control precision.

Packaging

Dosing machines

Glass and ceramics

Presses metal/rubber

Testing & Automation

Pharmaceuticals

Food industry

Automotive

Naval Transport Railway

Blow moulding plastic

Hydroelectric power stations





PRODUCT RANGE

5 . I S O S E R I E S E L E C T R I C C Y L I N D E R S : E C * 3

ECL3 – ECS3

- Sizes from 32 to 125
- Max axial force: 120,000N
- Max speed: 1.200mm/sec
- IP44 or IP65 protection (optional)
- Ball screws/trapezoidal screws
- In-line or parallel motor
- Available with stepper or brushless motors



5 . E C * 3 C H A R A C T E R I S T I C S

ELECTRIC CYLINDERS EC*3 SERIES

FEATURES

Electric cylinders with sizes from 32 to 125 compliant to ISO 15552.

The ECS3 version uses ball screws with a larger diameter than the ECL3 series.

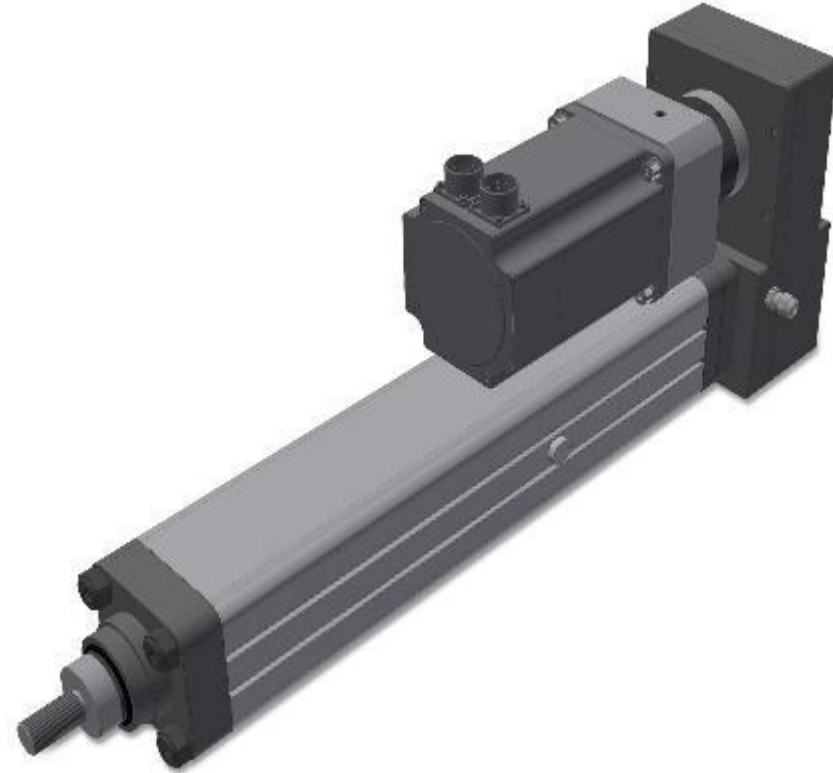
The cylinder can be equipped with an anti-rotation device inside; The piston integrates a magnetic ring for the control of sensors positioned along the profile of the cylinder.

The rod is sized to ensure maximum rigidity and high resistance to radial and peak loads. The screw is supported by high load capacity bearings to allow the transmission of high forces in both directions.

A high-strength toothed belt is used to connect the motor in parallel, while the in-line transmission relies on precision couplings.

6. ELECTRIC CYLINDERS ECF3 SERIES WITH INTEGRATED LOAD CELL

- Force control in both directions (push/pull)
- Size 80 -100 - 125
- Loads up to 120,000 N
- IP44 or IP65 (optional)
- Parallel motor
- Available with stepper or brushless motors



6 . E C F 3 C H A R A C T E R I S T I C S

ELECTRIC CYLINDERS ECF3 SERIES

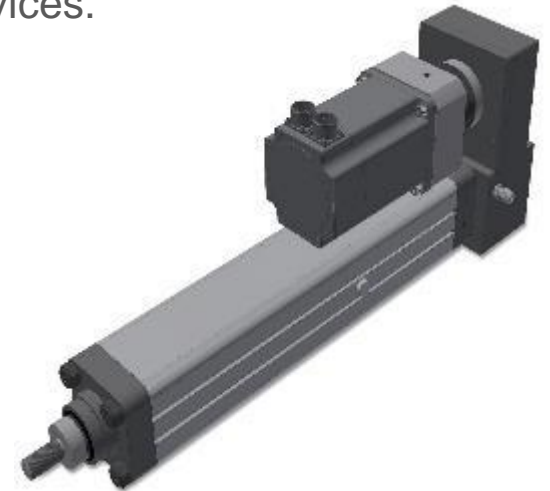
FEATURES

Derived from the ECS3, the ECF3 series cylinders are designed to be used in all applications where direct force control is required.

Compact design with an integrated load cell, the cylinder provides the actual thrust value at the output, allowing closed-loop control.

The integration of the cell into the cylinder guarantees its integrity and therefore its operation over time, and facilitates, simplifying it, the installation and design of the machine.

The output signal of the load cell is in voltage 0-10Vdc; therefore, it is not necessary to use additional amplification devices.



7. HIGH LOAD CAPACITY ECP4 SERIES

- Size 150
- Thrust capacity up to 250kN
- Guided stem
- Possibility of anti-rotation device
- In-line motor
- Available with brushless motor



7. ECP4 CHARACTERISTICS

SERVOPRESS CYLINDERS ECP4 SERIES

FEATURES

Servo press cylinder with thrust capacity up to 250kN.

The ECP4 series was created to meet the needs of applications such as pressing, fitting, clinching and similar, for which the market is "high demanding" in terms of strength, rigidity, precision and endurance.

Steel structure, ball screws or satellite rollers and thick stem give the product characteristics of high rigidity and robustness.

Optimized guided stem design simplifies machine execution



8. LINEAR MODULES LT*3 SERIES

- Ball belt or screw drive
- 5 models available
- Max stroke of belt modules up to 6.700mm
- Max strokes of screw modules up to 1,500mm
- Guide pads in high precision class
- In-line or 90° mountable motor



8. LT*3 CHARACTERISTICS

LINEAR MODULES LT*3 SERIES

FEATURES

Linear modules available in different configurations that meet different needs of precision and speed; The transmission can be with belt or ball screw.

Ideal product for translation, machine set-ups and load positioning applications.

They are designed to ensure reliability, durability and reduce maintenance costs: linear guideways, in high precision class, integrate gradual lubricant release cartridges. The transmission is selected to meet criteria of robustness and endurance.

All units are designed to give maximum protection of internal components and can be used both in environments with particular contaminants, and in those where the cleaning requirement is essential.

The combination of modules allows to create Cartesian systems with 2, 3 or more axes.



9. MOTORS & DRIVES SMH - SCH SERIES

SMH

Flange [mm]	40 - 60 - 80
Voltage	24 ÷ 48 Vdc / 230 ÷ 400Vac
Available torque	0,32 ÷ 3,2 Nm
Power	100 ÷ 1.000 W
Encoder	Incremental/Absolute



SCH

Voltage	24 ÷ 48Vdc / 230Vac
Power	350 ÷ 1.000W
Interface	Modbus, CANOpen, EtherCat, ProfiNet
Protection	STO function



9. MOTORS & DRIVES

SMK – SCK – SCD – DMH SERIES

SMK

Flange [mm]	110 - 130 - 150 - 180
Voltage	230Vac/400Vac
Available Torque	4 ÷ 52 Nm
Power	1.250 ÷ 7.500 W
Encoder	Incremental /Absolute/Resolver



SCK – SCD – DMH

Voltage	230 ÷ 400Vac
Power	1,5kW ÷ 17kW
Interface	Modbus, CANOpen, EtherCat, ProfiNet
Protection	STO Function



9. MOTORS & DRIVES CHARACTERISTICS

MOTORS & DRIVES

FEATURES

The motors are made with technology that allows high torque density, which makes them compact and dynamic; They are suitable for most industrial applications.

Speed up to 5,000 rpm and natural convection cooling.

The drives are equipped with a 32-bit processor, PWM frequency up to 20kHz and support Modbus, CanOpen, ProfiNet, EtherCAT fieldbuses.

Digital I/O for torque control, cogging compensation, jerk, multi-positioning.

The drives of the SCH series are universal and can handle rotary and linear brushless motors, asynchronous motors, electrospindles, direct current and permanent magnets.

They can be synchronized for multi-axis control. On drives with AC power STO (safety torque off) function is available.

Responsive and performing thanks to lightweight firmware. Easy to use with embedded software for complex positioning, management of electric axes, electronic cams.

10. DAIKIN'S BUSINESS



Daikin HQ

Air Conditioning



Residential



Commercial



After Sales Service

Chemicals



Refrigerant



Semiconductor Applications



Automotive Applications

Others



Oil Hydraulics equipment



Filters



Oxygen Concentrators

10. DAIKIN HYDRAULIC BUSINESS FIELDS



Industrial hydraulics

Hybrid units



Oil cooling unit



Super Unit



ECO-RICH

Conventional items



Pumps



Solenoid valves



Modular stack valves

Mobile hydraulics



Construction Vehicles

Lubrication



Grease Pumps



Steelmaking Facility

10. DIPLOMATIC GROUP

DIPLOMATIC GROUP

designs and manufactures technology solutions for motion control in multiple sectors.

3 BRANDS

DIPLOMATIC
MOTION SOLUTIONS
a member of **DAIKIN** group



Diplomatic for industrial applications

HYDRECO
a member of **DAIKIN** group



Hydreco Hydraulics for mobile applications

CONTINENTAL HYDRAULICS
a member of **DAIKIN** group



Continental Hydraulics for industrial applications in North America

11. AT A GLANCE

HIGHLIGHTS

at 31.12.2022



Headquarter

Parabiago
(Milan, Italy)



13

plants worldwide



650 +

employees



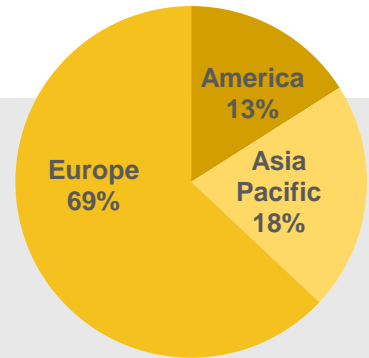
5,000 +

customers



162 Mln €

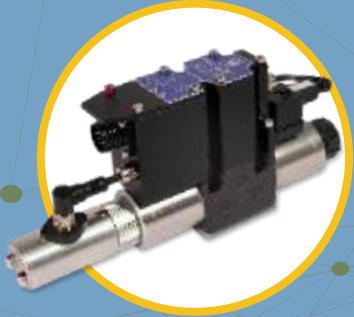
group consolidated
turnover



turnover by
geographic area

12. PRODUCT RANGES

VALVES



PUMPS



POWER TAKE OFFS



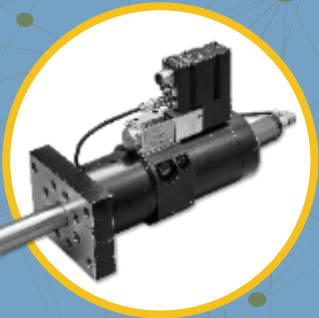
SYSTEMS



MICRO HYDRAULICS



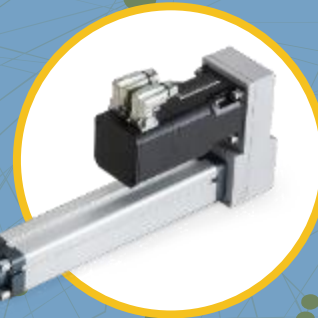
HYDRAULIC CYLINDERS



REMOTE CONTROLS



ELECTRIC ACTUATORS



TURNKEY PROJECTS



13 . IO - Link

Duplomatic is the first Italian IO-Link certified **COMPETENCE CENTER.**

Duplomatic MS is engaged in promoting IO-Link as digital communication protocol to enable the 4.0 revolution.

Duplomatic IO-Link is a challenge that goes beyond the development of a new range of hydraulic valves.

IO-Link is a universal communication technology capable of digitizing all devices used in a system, enabling the exchange of useful diagnostic information from remote components, without adding complexity.



Duplomatic actively supports and promotes the digital transformation introduced thanks to the 4.0 paradigm with new products and solutions.

INDUSTRY 4.0

14. OUR PEOPLE



“
Coming together is
a beginning.
Keeping together is
progress. Working
together is success.
”

Henry Ford



Thanks for your attention

www.duplomaticmotionsolutions.com

CONTACT
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