**Metal Work electric actuators**



Metal Work is a company specialising in the production of components for automation. It is based in Concesio, near Brescia, and with its 42 subsidiaries in the world it has rapidly extended its range of electric actuators. Although pneumatic actuators are the simplest, economic and reliable system to drive movements in most applications, there is, however, the need to perform positioning with the possibility of changing strokes, speeds and accelerations. Electric actuators can now meet these requirements. For several years now Metal Work has offered electric cylinders with an interface complying to ISO 15552, which are dimensionally interchangeable with pneumatic cylinders. Other solutions have been developed, and there is now a wide selection of Metal Work electric actuators. The motor can be chosen within an optimized range, which includes STEPPER motors and BRUSHLESS motors. Motors of a make chosen by the customer can also be used. The families of products proposed are:

- **Electric cylinders series Elektro ISO15552**, with diameters 32, 50 and 63, strokes up to 1500 mm, axial thrust up to 6500 N, speed 0 to 1000 mm/s. The piston rod moves forward by means of a hardened ball recirculation acme screw and nut. The piston has a guide ring that is calibrated to minimize the backlash with the cylinder liner and reduce vibration during rotation of the screw. The cylinder can be equipped with a built-in anti-rotation system consisting of two opposing shoes running along two separate longitudinal slots in the liner. The piston is fitted with a magnet and the liner has longitudinal slots to accommodate any sensors. The piston rod has an increased outside diameter and thickness to obtain maximum rigidity and withstand radial and peak loads. The screw/nut can be lubricated without having to remove nothing. The cylinder can be secured using numerous standard pneumatic cylinder accessories, including an intermediate hinge. There is a version for in-line mounting, where the motor shaft is directly connected to the screw by means of a joint. There is a version with geared motor, where motion transmission is ensured by pulleys and cogwheels, with a 1:1 gear ratio. Drives suitable for motor actuation are also supplied.

- **Electric cylinders series Elektro ISO15552 for heavy loads**, with diameters from 80 to 100 and axial thrusts up to 12,000 N. They have the same technical solutions as the smaller sizes, but of a large dimension. For size 100, the ball recirculation screw has a diameter of 50 mm!

- **Electric cylinders series Elektro Round DC**, for continuous movement, are driven by a 12VDC or 24VDC direct current motor. Nominal diameter 32, stroke up to 1000 mm and thrust up to 500 N. The speed is fixed and can be chosen between 10 mm/s and 100 mm/s at the time of purchase. These cylinders have a “clean” profile and IP65 protection rating. The command by means of an irreversible acme screw can withstand loads in a vertical position, even when the system is powered off.

- **Electric actuators driven by a screw and ball recirculation nut,** available in three sizes. The first size available comes with thrusts up to 1500 N and strokes up to 1200 mm. It follows the development of larger sizes. The anodised aluminium liner comes complete with a metal strip along the entire length that creates a barrier to dirt. The liner contains the screw with the ball recirculation nut and the hardened steel guide with ball recirculation shoes. In this way the outer edge remains clean, without control/guiding parts, while the slide can withstand high loads and movements, as it is secured to sturdy ball recirculation shoes. The slide and liner come with V-Lock modular couplings, which means that you can fix any other product in the V-Lock families, such as pneumatic actuators, rotary actuators and grippers, without requiring any adapters.

- **Electric actuators driven by a cogwheel,** available in two sizes, with strokes up to 2400 mm and speeds up to 4 m/s and acceleration up to 20 m/s2. V-Lock modular fixing.

These actuators can be combined together to form x-y-z portal structures.

- **Motion programming drive**. This electronic device can control all types of actuation of any capacity, for both brushless motors and stepper motors. It is designed to facilitate work cycle programming, even for the less expert, and provides control of electric actuators even without a PLC. This is an important element for easier replacement of pneumatic actuators with electric ones.

Figure 1

Cylinders series Elektro ISO15552 and Elektro Round DC