

Focus on a wide range of innovative solutions

Cylinders series ISO1552: modern design and improved performance

Metal Work has recently introduced a family of ISO 1552 compliant cylinders (former ISO6431), which has been accurately redesigned and enhanced.

The new cylinders preserve the technical and construction features that have contributed to their success in terms of performance and reliability, while introducing innovations that further improve performance.

Like the previous version, the cylinders have: chromed and ground steel rods, both C45 and stainless; head fixing by means of special three-lobe screws; no tie rod; rod guide by means of Teflon-coated bushing with almost no wear; polyurethane, NBR, FKM/FPM lip seals; double anti-corrosion protection for heads, with alodine treatment and subsequent painting. In addition, specific aesthetic and functional features have been added so that these cylinders can meet market requirements in the next few years with stronger competitiveness.

The new head design stands out for the curved outer profile and the lack of cav-



ity, allowing easier cleaning; they are painted in metallic grey for a more modern and valuable look.

Inside the cylinders, shock-absorbing elastomer elements have been added to minimize noise when the piston reaches the end of its stroke and to absorb kinetic energy.

The adjustment of pneumatic shock-absorbers has been improved by optimizing the shape of the adjustment needle; this ensures high accuracy in operation as well as large flow rates with open needle to meet high speed requirements.

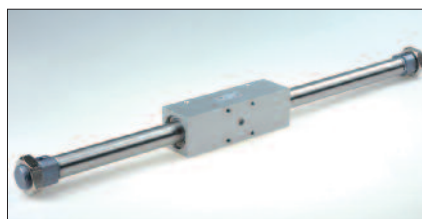
An up-to-date range of magnetic drive rodless cylinders

Rodless cylinders are used when the axial footprint of standard rod cylinders is not admitted.

As known, the length of an extended rod cylinder is more than twice the cylinder's stroke, while the length of a rodless cylinder is just slightly longer than its stroke. The most traditional and popular solution is an aluminum liner with C-shaped section, a carriage with a very peculiar profile with a portion inside the liner and a portion outside, a system of flexible steel strips that close the longitudinal groove of the liner.

This solution has many benefits but some application limits. In detail, there are continuous compressed air leaks, as the pneumatic tightness of the steel strips cannot be perfect.

When air losses are not admitted and/or you want to prevent foreign fluids or dirt from entering the liner, magnetic drive rodless cylinders offer a solution.



The liner is replaced by a simple stainless steel tube.

The piston runs inside the tube, including a pack of powerful permanent magnets.

Outside the liner, a carriage wraps it and includes another pack of magnets. The carriage follows the piston motion due to magnetic force.

If the carriage is subject to a higher force than magnetic attraction, the carriage is "released", therefore you must comply with the pressure and strength limit values specified in the catalog.

Metal Work has developed a modern range of magnetic drive rodless cylinders, available with 16, 20 and 25 mm bores, and standard strokes up to 500 mm.

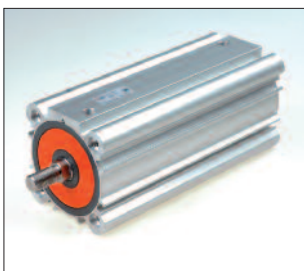
Magnetic sensors can be applied to detect the carriage position.

The heads have a similar shape to those of ISO 6432 cylinders, hence the same fixing accessories can be used.

All-round innovation for compact cylinders series 21287

The family of 21287 compliant cylinders is based on innovative design solutions.

The anodized extruded aluminum liner covers the full length of the cylinder and executes



virtually all functions. Besides containing the piston with seals, it carries the threaded pneumatic connections, the threaded holes and the fixing spot faces, the seats for magnetic sensors.

With this solution, the heads have been totally eliminated, to the benefit of simple construction, sturdiness and geometric accuracy.

The covers that close the front and rear openings of the liner are made of a special high-resistance technopolymer. It is worth noticing that all heavy-duty operations, stress and impact are taken over by the metal liner, while the technopolymer parts only bear pneumatic thrusts. The piston is made of the same material as the end covers.

The seals can be made of polyurethane, or FKM for high temperatures or aggressive conditions.

High-precision pressure switch with high discharge capacity

Metal Work has introduced a new line of pressure switches, characterized by high precision combined with the capacity to release high air flow rates. These products are designed for applications where delivery pressure must be as accurate as possible, and when air should be allowed to flow back and forth.

A typical application is the supply of sand rollers, where the cylinder rod driven from outside shall follow the ingoing and outgoing motion with no variations in thrust and pressure. Other applications include balancing cylinders, manual weight lifting systems and constant pressure tanks. Different sizes are available with 1/8", 1/4", 3/8" and 1/2" connections.

The pressure regulation ranges can be 0 to 2, 0 to 4 or 0 to 8 bar. The sensitivity of relieving, i.e. downstream overpressure which forces the regulator to start releasing air in order to restore the preset pressure, is 0.010 bar. Regulated pressure is not affected by supply pressure variations; for instance, if upstream pressure increases from 4 to 7 bar, adjusted pressure only changes by 0.020 bar.



Traditional automatic fittings have their offspring

Automatic fittings series R have been Metal Work's pride for decades, manufactured and sold in tens of millions. With this product, the company had the opportunity to work with "almost unachievable" customers.

The "orange ring" can be seen on machinery, trucks and plants all around the world.

Now, it's time for the R fitting to retire and make room to a new generation: the new fitting inherits all the performance of good old R, adding miniaturization, easier pipe unlocking and a tighter hold on polyurethane pipes.

The new family of fittings has also been expanded with additional shapes and sizes, making it one of the most complete and reliable collections of fittings on the market.

