

THANKS TO THE QUICK AND EFFICIENT TECHNICAL SUPPORT OF BONESI PNEUMATIK, GLOBAL HAS BEEN ABLE TO UP-DATE ITS EQUIPMENTS FOR TESTING OF THE ALUMINIUM RADIATORS FOR HEATING. LEADING OF SUCH RESULT IT HAS BEEN A SPECIAL PNEUMATIC ACTUATOR IN STAINLESS STEEL CHARACTERIZED BY SPECIAL TECHNICAL PECULIARITIES, SOME OF THEM NOT CONVENTIONAL.



Thanks to advanced technologies, Global produces a wide range of aluminium efficient heaters, strong and elegant.

# A CUSTOMIZED SOLUTION FOR AN EXCELLENT TESTING

**P**resent in every location, the radiators (better known as heaters) are integral part of our houses, offices and every location to be heated. They are components that have to satisfy specific needs of comfort, efficiency and appearance and to this purpose their features, reliability and design are in continuous monitoring. Exactly this is, since half century, the mission of Global, company completely made in Italy that in its headquarters of Rogno (BG) controls the complete development cycle of its product, from the casting to the shipment all over the world. "The production of our radiators - explains Massimo Zanardini, responsible for the finishing department - starts from the casting of the aluminium ingots in automatic ovens, continuously monitored and analyzed with specific instruments in order to get the best quality of the casting. The aluminium alloy is located in the stand-by ovens from where the loader collects the exact quantity to inject in the cavity of the mould with powerful automatic machines, creating in this way the

heating element. This, after strict controls on the thickness and on dimensional tolerances goes to the department of the mechanical machining. Here, with an automatic cycle, the heating element is threaded, polished and assembled to obtain manifolds according the requests".

After the assembling, manifolds of various number of elements are obtained on which are effected operations of control of the watertight sealing. A strict testing is effected with specific equipments obtained inletting air at a minimum pressure of 21 bars, followed by a further visual control by expert people to verify possible anomalies.

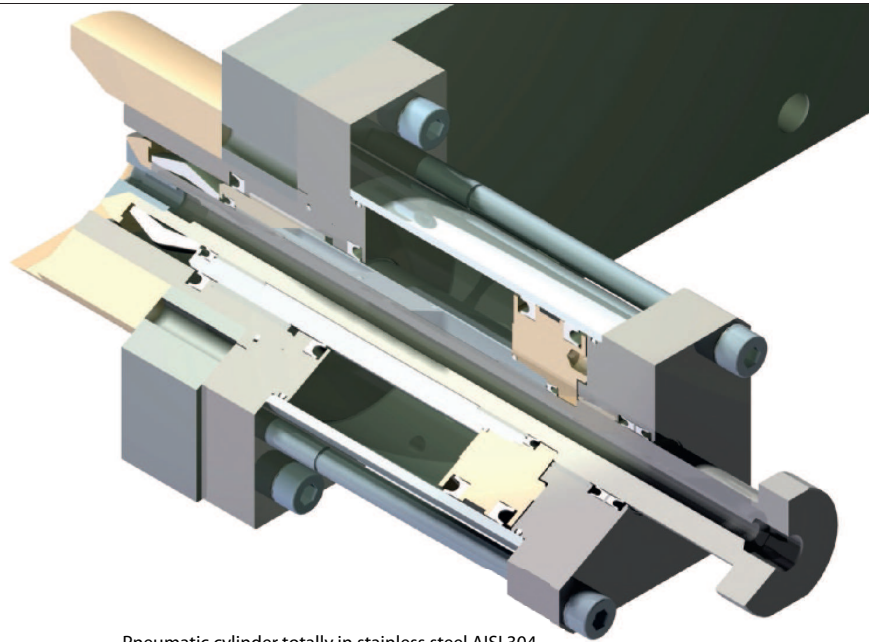
"The necessity to test our products at an higher pressure in comparison to the previous one - underlines Zanardini - has obliged us to modify the existing automatic testing benches and the replacement of the existing cylinders for the closure of the manifolds".

Not anymore standard cylinders, but special automatic actuators specifically studied and developed by Bonesi Pneumatik.

#### Performances without compromises in stainless steel AISI 304.

Strongly automatized, Global has always given great importance to the innovation of the process, getting in the years great levels of efficiency, in a production cycle very articulated. To the phases before described, after the decisive and strict control of the element in the manifold, follow the transfer to the washing tanks, the de-greasing and the phosphatising dip. One of the last phase is the painting: first in "anaphoresis" with liquid paint in immersion in order that the radiator is completely protected, second with dusts "epoxy polyester".

"To every phase of painting - says Zanardini - follows a baking in oven at 200°C that guaranties a product resistant and unalterable".



Pneumatic cylinder totally in stainless steel AISI 304, realized by Bonesi Pneumatik for the watertight sealing testing benches of the heaters of Global in Rogno (BG).

#### The Company in details.

With Headquarters in Zogno (BG), Global develops and produces aluminium radiators for heating since 1971, with a turnover that last year was around 50.000.000 Euro.

The Company, in which operate over 200 employees, is now considered in its field a reference point, Nationally and Internationally, for the quality of the product and for the process.

Such result has been possible thanks to the high level of quality reached, in function of the strict controls done during all the production cycles and thanks to the continue research of innovative technical productions, with care also to the environmental aspect.

The mission is to supply a source of heating and, at same time, a complement of furniture able to satisfy all kind of request. At the base of the success that at present has the Logo Global there is solidity of the Company that allowed to invest in the automation, with the consequent increase of the quality. Thanks to this, also an innovation on the production has been possible to satisfy a market deeply evolved during the recent years launching also new products for functioning with solar panels, or at high efficiency, working at low temperatures like the condensation boilers.

It is to be underlined that at beginning of its activity such Company of the Bergamo area was producing only die-cast products. Afterwards, in order to satisfy the international requests they have developed new exclusive products, getting also a patent. It refers to a innovative product "dual-metal" that has a core in steel and a die-casted covering. This synergy gives to the radiator the characteristic to be resistant to waters with high PH and operating pressures over 35 bars, keeping the design thanks to the aluminium covering that gives also a good thermal efficiency.

With headquarter in Zogno (BG), in which operate over 200 employees, Global produces a wide range of die-casted aluminium radiators, exported all over the world.

Another point in favour of Global is the innovative method to combine two different kind of machining: the welding of two die-casted parts with an extrusion, giving strength and difference on what present on the market. Global is ISO 9001 and ISO 14001 certified offering quick time of delivery thanks to the innovating computerized systems that handle the orders.

Such innovation has been strongly determined by the founder Ottorino Fardelli, recently passed away and to which must be given the honour to have created such success all Italian.



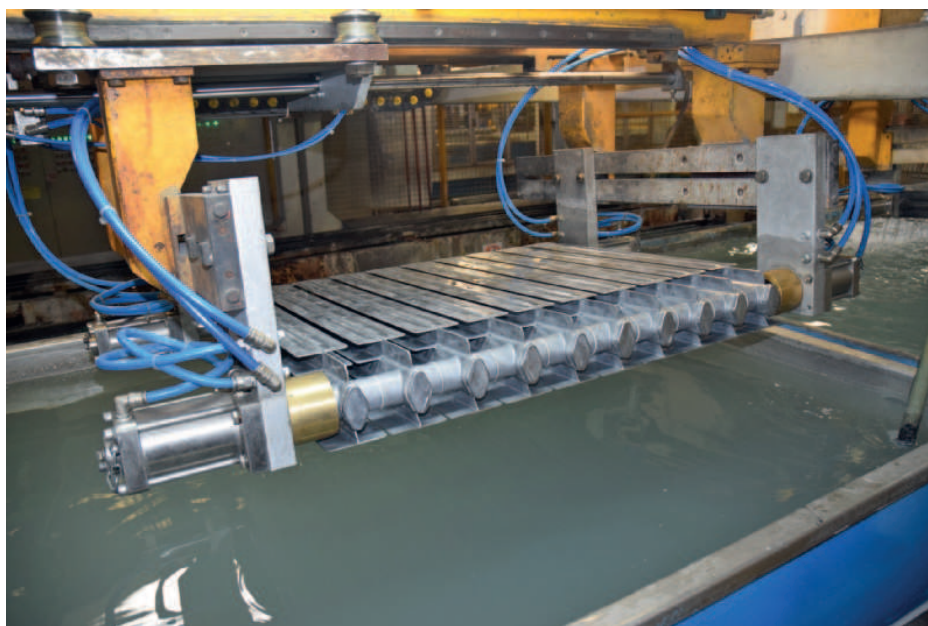


## PNEUMATIC SYSTEMS



**Massimo Zanardini**  
responsible for finishing department  
for Global, Rogno (BG, Italy).

On each testing tank  
for the control of the  
Global radiators take  
place 4 special  
cylinders developed  
by Bonesi  
Pneumatik.



Totally in stainless steel AISI 304, on the special actuator  
developed by Bonesi Pneumatik it is included a centre  
bushing to help the positioning and the keeping of the  
manifold during the test.

The last phase regards the packaging of the manifolds by a polyethylene film and a strong carton that protect them until the moment of the installation. Therefore, maximum and total attention to the process to obtain a product conform to the standards of the countries where it will be used. "Very important during the cycle of development of the product - underlines Zanardini - is the testing phase,

manifold by manifold, important to get the final certification.

It takes place on automatic testing benches and the test, in order to have positive result, must respect determined values of pressure. That is possible only if the cylinders used to this purpose have a perfect mechanical tightness".

On each testing bench there are 4 cylinders and they have been developed in the new version by Bonesi Pneumatik according precise specifications. First of all the technicians of Global have required a cylinder not anymore in aluminium, but completely in stainless steel AISI 304, to avoid possible problems of corrosion (in consideration that during every cycle they have to be immersed in water tanks). It was also increased the bore (from 63 to 70 mm) to guarantee the functioning of the moving control at higher pressure (up to 16 bar). At last, the request of Global that the new cylinder would be integrated, in the rear head, with a mounting flange with centre to centre distance as those of the cylinder bore 63 in order to ensure a quick maintenance without the necessity to modify the existing testing benches.

### From the project to prototype to supply.

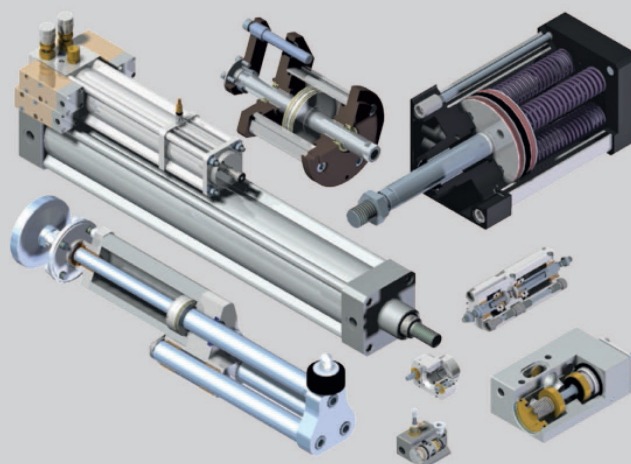
Got the above specifications, together a layout in 3D, the technicians of Bonesi Pneumatik co-ordinated by Fabrizio Ghirardi, area sales manager of the said company, have developed a new special actuator. That means a cylinder (internally rectified), of 70 mm. bore (not usual size in pneumatic), with stroke of 58 mm, double acting functioning and, as said, completely is stainless steel AISI 304.

"After the receipt of the prototype - specifies Zanardini - realized in quick timing, we run an efficient technical comparison on the basis of our specific needs".

### Beside the customer to win new market competitions

Established in 1953, Bonesi Pneumatik since always develops, manufactures and distributes own products, Nationally and Internationally, by a distribution net become strong during the years and in continuous evolution. Crowning achievement of the activity is its internal R&D, run by a young and qualified technical staff, allowing to reply to all the market needs, in short time and at competitive costs. In this contest, with the precise objective to give quick replies to its customers, the Company has implemented the strategy of the "customized product" evaluating all the possible needs of special executions and trying to satisfy the requests with appropriate solutions. The application described in the present pages is a clear example of this strategy. A synergy and a cooperation that have allowed to satisfy the specific requests of Global. Such choice is appreciated by the actors of this job to win the market competitions, thanks to the competence of a technical office able to understand the needs of the O.E.M and to realize customized products also in presence of limited quantities. The fast time for the development with consequent reduction of the time-to-market, appreciated by Global, has been possible thanks to the advanced Cad 3D system available and to the direct contacts between the technicians of Bonesi Pneumatik with those of Global. These significant results are also possible thanks to the potentiality of the Production Unit of Bonesi Pneumatik in which operates 25 CNC some of them subservient by anthropomorphous robots, automatic machine tools for cutting of

profiles, an advanced plant for epoxy paintings, in addition to the not less important toolings for assembling and testing, washing and/or finishing of the machined pieces and printing laser machineries for the useful correct and complete display of the data, always more requested.



Bonesi Pneumatik in Legnano (MI) develops, produces and distributes its products nationally and internationally, considering the "made in Italy" one of its more important strength.



**Fabrizio Ghirardi**  
sales area manager for  
Bonesi Pneumatik, Legnano  
(MI), Italy

Detailed needs that gave the inputs to realize an actuator tie-rod construction, front piston rod diameter 30mm (also this in stainless steel AISI 304), internal piston rod with double diameters, 22 and 16 mm, with hollow hole of 6 mm (also this in stainless steel AISI 304).

"Cylinder that includes also a centre bushing - adds Zanardini - that helps the positioning and the keeping of the manifolds of radiators during the testing, bushings between the piston rods and special seal in NBR. In order to avoid the wear of the barrel, the rod stopping bush has been requested and made in brass".

In a short time Bonesi Pneumatik have produced and supplied 50 of such pneumatic actuators in order to allow Global a gradual update on about 10 testing benches, on a total of almost 20 benches.

"Our production - says Zanardini - is 100% checked and tested continuously and constantly.

With our operative rhythms, the quick feedback of Bonesi Pneumatik has helped the planning of the updating of our equipments, without obstructing the normal production".

In some cases, if needed, such testing benches work in two shifts for testing cycles that last around 60 seconds each.



Global tests the 100% of its production.

"Bonesi Pneumatik - concludes Zanardini - has been a Company very dynamic and accurate to our needs. The quick realization of the project and the consequent supplies of the actuators have qualified them as a good Partner and Supplier, considering in particular our need to reach result in short time, without forgetting the after-sale service monitoring the radiators on working to verify the expected features".

Only thanks the cooperation with dynamic companies, like Bonesi Pneumatik demonstrated to be, Global can continue and face the new challenges that actual markets require in order to give fast and reliable replies that allow them to maintain high their level of competitiveness.