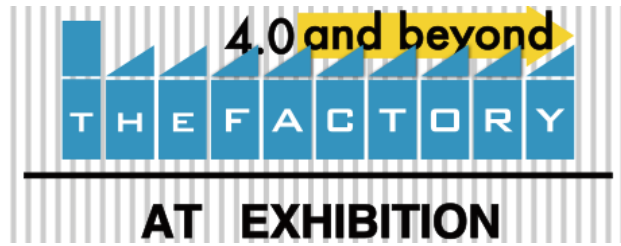





Worksheet – Partners of The Working Factory



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 <p>ALMAG SpA Via Vittorio Emanuele II, 39 25030 Roncadelle (Brescia) Italy</p>	<p style="text-align: center;">Brass rod – raw material</p> <p>Brass is commonly perceived, even among technicians, as an alloy for architectural use, for its characteristic color and maybe because of its similarity to gold. Manufacturers of metal parts, for the most diverse areas of application, have often found that a specific cost-benefit analysis proves surprisingly that the higher cost of the raw material is more than offset by the cost of production, so that at the end a brass piece costs considerably less based on the same performance. Let's look at the technological features and competitive advantages of this material, in comparison with other materials commonly used. Brass is a copper-zinc alloy with sometimes added with other elements to obtain specific properties; it can be provided as semi-finished products such as sheet metal, strips, tubes etc., or in round full and hollow bars, extrusions, wires, etc. intended mainly for mechanical processing or hot pressing, which are the main object of Almag Spa production. It is a series of alloys with 57-63% copper content and zinc to complement, with other elements added for particular characteristics, such as lead, which is added in levels up to 3.5% to promote the removal of chips. The legislation provides numerous alloys for this composition range, so it is possible to have the most appropriate composition corresponding to the set of technological characteristics desired, as illustrated in the catalog. In the same catalog, you can learn the size and relative dimensional tolerances of the bars; suffice it to say that the tolerances are usually expressed in hundredths of a millimeter to see that they meet the most stringent requirements demanded by modern machines.</p>
 <p>FARM NEW BRASS srl Via Madre Teresa di Calcutta, 2/4 10073 Ciriè (Turin) Italy</p>	<p style="text-align: center;">Parts feeding</p> <p>Through an automatic rod loader, the rod bas is loaded and inserted into the oven. After being heated, the rod is extracted from the oven and is cut into billets.</p> <p style="text-align: center;">Brass rod heating and cutting</p> <p>2</p> <p>.....</p> <p style="text-align: center;">Offloading of the machine</p> <p>Through a timer, the single billets are sorted on one of the two tracks</p>

	<p>of the conveyor belt and are transported to the robot of the forging machine.</p>
 <p>AUTOMAZIONI INDUSTRIALI s.r.l. Via Castagnotta, 8 25075 Nave (Brescia) Italy</p>	<p style="text-align: center;">Parts feeding</p> <p>A robot removes the previously furnace-heated billets from the loading conveyor belt and unload them in the lower half-mold inside the press.</p> <p style="text-align: center;">Forging - Molding</p> <p>The upper level of the press closes downwards and brings the upper half-mold to total closure. When the mold is closed, extruders move the buckling pins into the mold cavities and deform the billets, giving form to a shaped piece just in the mold itself. When the vertical level opens again, the forged pieces stay grasped the upper half-mold.</p> <p style="text-align: center;">Offloading of the machine</p> <p>Through a vertical arm, the pieces are removed and unloaded outside the press on a conveyor belt to reach the piece-cooling step.</p>
 <p>STB OFFICINA MECCANICA DI BUGATTI A. & TONINELLI M. snc Via Mainone, 56N 25065 Lumezzane (Brescia) Italy</p>	<p style="text-align: center;">Forging moulds</p> <p>1st STEP: Design. At the beginning we study, design and develop the product with CAD CAM program, through which we realize in 3D the mould and all its components</p> <p>2nd STEP: Roughing. The material for the mould production is supplied as a raw material by the steelworks. Then it is squared and pre-drilled</p> <p>3rd STEP: Heat treatment. The mould is heat-treated and brought to a hardness of HRC 48-50</p> <p>4th STEP: Finishing. The mould is first grinded and then the figure (specified by CAD-CAM) is created by the high-speed machining centers. At this point all the lubrication holes are made through a 4 axis drilling center. The last step is the polishing and dimensions check by the "RENISHAW" probe.</p>
 <p>SO. TEC s.r.l. Via Castel Gandosso, 15 24030 Almenno San Bartolomeo (Bergamo) Italy</p>	<p style="text-align: center;">Fumes Aspiration</p> <p>The oil mist and fumes are conveyed inside the filter.</p> <p>So.tec oil mist filters normally have two filtration stages and can be equipped with a third stage in order to allow the air to recirculate within the work environment.</p> <ul style="list-style-type: none"> • The first stage separates any dusts and mists present with particle sizes greater than 1 micron. • The second stage, which features high aggregation/separation efficiency Microless® coalescing elements, separates oil mists with submicronic particles and provides for filtration results comparable to those of certified absolute HEPA filters.

	<ul style="list-style-type: none"> The third stage (optional), which consists of absolute HEPA filters, guarantees the quality of the air to be recirculated back into the work environment. The high efficiency of the coalescing elements installed in the second stage also ensures the long service life of the absolute filter.
 <p>COGEIM EUROPE srl Via Villapia, 9/11 20010 Casorezzo (Milan) Italy</p>	<p style="text-align: center;">Parts feeding</p> <p>After the cooling process, the work pieces leave the cooling tunnel and are conveyed, via a rubber belt conveyor, to a shot-blasting machine for the blasting process.</p> <p style="text-align: center;">Sandblasting</p> <p>After the closing of the loading / unloading door, the movement of the rubber mat of the shot-blasting machine start the tumbling of the work pieces. As the abrasive supply valve opens, the turbine throws the abrasive against the work pieces at very high-speed (more than 80m/s), performing the surface cleaning treatment.</p> <p style="text-align: center;">Offloading of the machine</p> <p>At the end of the selected blasting time, the blasted parts are offloaded onto a rubber conveyor belt, which conveys them to the robotic transfer loading device.</p>
 <p>BTB Transfer SpA Via Vittorio Veneto, 31 25073 Bovezzo (Brescia) Italy</p>	<p style="text-align: center;">Parts feeding</p> <p>After the shot-blasting process, work pieces enter the motorized hopper of an electric plate lift. Through a vibrant passage, they are transported on a backlight band in order to be taken. Thanks to the vision system, a robot takes the printed work pieces and loads them in the processing machine. Any piece that was not taken by the robot comes back to the initial hopper by means of a conveyor belt.</p> <p style="text-align: center;">Mechanical processing</p> <p>The pieces are loaded in the machine on the loading station, beginning their working cycle trough the various stations. The piece is machined by chip asportation: milling, drilling, boring, threading, deburing operations are performed even simultaneously.</p> <p style="text-align: center;">Offloading of the machine</p> <p>The processed pieces are unloaded through a conveyor belt and brought to the metal washing machine.</p>
	<p style="text-align: center;">Parts feeding</p> <p>The pieces processed through the transfer machine are brought into the metal washing machine by means of a conveyor belt.</p> <p style="text-align: center;">Metal Washing</p> <p>The work piece dirty of production scraps which oil and/or shavings,</p>

<p>EUROFIMET srl Via Corfù, 22/24 25065 Lumezzane (Brescia) Italy</p>	<p>in the first step is completely immersed in water in temperature and, through a spiral system, it is transported to the second step where a series of pressure sprays removes the possible residues left by the immersion phase. In the third step, through a hot air blowing, the work piece is being dried.</p> <p style="text-align: center;">Offloading of the machine</p> <p>After the metal-washing process, the work pieces are transported into a robotic plant in order to be loaded into the assembly machine.</p>
<div style="text-align: center;">  </div> <p style="text-align: center;">SALA srl Trav. Via De Gasperi, 41 25060 Collebeato (Brescia) Italy</p>	<p style="text-align: center;">Parts feeding</p> <p>Through an automatic rod feeder, the brass rod is loaded into the processing machine.</p> <p style="text-align: center;">Balls machining for valves</p> <ul style="list-style-type: none"> • Machining operations: • Rod cutting, • Drilling and preforming, • Rough turning, • Diamond finishing, • Radiused chamfering waterway ends CNC numerically controlled (our patented system) • Horizontal drilling (3-4 way balls, with angular programmable position through CNC from 0 to 360°), • Milling the slot, • Slot deburring. <p style="text-align: center;">Offloading of the machine</p> <p>After the machining process, the work pieces are unloaded in the specific station of the assembly machine.</p>
<div style="text-align: center;">  </div> <p style="text-align: center;">FELP ASSEMBLY SYSTEMS srl Via E. Fermi, 2 24050 Palosco (Bergamo) Italy</p>	<p style="text-align: center;">Parts feeding</p> <p>The washed work pieces are loaded into a motorized hopper of an electric plate lift by means of two vibrant passages. Then, the pieces reach the double feeding system made of backlight bands, where an anthropomorphic robot, through its vision system, takes a work piece and loads it into the assembly machine. Any piece that was not taken by the robot comes back to the initial hopper by means of a conveyor belt. The diamond balls coming from the ball transfer machine reach the assembly machine by means of motorized belt. All the others valve's components are stocked not aligned in personalized feeding systems for the automatic feeding and selection.</p> <p style="text-align: center;">Assembly</p> <p>The assembly and testing machine is designed to assemble and test ½" ball valve with all its components in a completely automatic way. The valve body, coming from the washing cell, is loaded by means of robotic vision system in the customized piece-holder of the rotary table. The succeeding stations of the table are intended for the</p>

	<p>mounting of components and/or execution of particular operation on the ball valve, by performing sequentially the entire assembly process:- Insertion of the first PTFE seal into the valve body seat- Lubricant nebulization inside the valve body and PTFE seal lubrication- Driving stem insertion (preassembled with O-rings and antifriction ring) in the valve body seat- Phase orientation and insertion of the chrome plated ball directly fed by the ball diamond finishing tooling machine- Lubrication and insertion of the second PTFE seal into the sleeve seat- Tightening of the sleeve on the valve body with micro-dosing of thread-locking glue and successive transfer to a storing carousel to allow proper glue curing. The ball valve so assembled is ready to be airtight tested. The micro-leak seal testing by air pressurization of the valve is performed with the help of specific electronic equipment, interfaced with the PLC of the machine. The final assembly is processed on a second rotary table and allows customization of the ball valve through the automatic mounting of the control lever with the related locking nut and its marking on the upper surface. The machine cycle time for testing and the complete assembly of the ball valve is 3 seconds which means that every 3 seconds the rotary table will index once preparing each piece for subsequent processing and downloading from the last station a ball valve assembled and tested.</p> <p style="text-align: center;">Offloading of the machine</p> <p>After the assembly process, the work pieces are unloaded into a box.</p>
 <p>XPLAB – RESEARCH IN AUTOMATION Viale s. Eufemia, 39 25135 Brescia Italy</p>	<p style="text-align: center;">Display – Supervisor</p> <p>The supervisor of The Working Factory gathers all the production data and visualize the single machine and system status on synoptic panels, supplying the operators with an overall interface.</p>