

Sabaf Group wins the Best managed companies Award 2020

The third Italian edition of the “Best Managed Companies”, initiative promoted by Deloitte and sponsored by ALTIS Graduate School Business and Society and by Elite, awarded, among winners, Sabaf, Italian multinational and reference reality in the sector of household appliance components. An important prize in a difficult year, motivated just by the company’s reaction to the crisis caused by pandemic. Sabaf was ready to act with great capability and resilience to cope with the crisis, constantly keeping the company’s focus on human resources, controlling cash flows while respecting the supply chain, releasing new products and services to face the market’s changed demands, committing towards the surrounding community, demonstrating sense of social responsibility and strengthening the communication towards all stakeholders.

“This award, which comes after that of last year, confirms us that we are keeping the right course even in a context as complex as the present one - said Pietro Iotti, Chief Executive Officer of Sabaf. “It is a particular satisfaction because it is the result of a comprehensive survey of our company, based not only on numerical parameters, but also on the analysis of the strategy, the governance model and the involvement of all categories of stakeholders. It is a reward for the work of the entire organization, which encourages us to continue along the path of growth that we have traced”.

Il Gruppo Sabaf vince il Best managed companies award 2020

La terza edizione italiana del “Best Managed Companies”, iniziativa promossa da Deloitte e sostenuta da ALTIS Università Cattolica, da ELITE, ha visto tra i vincitori Sabaf, multinazionale italiana e punto di riferimento nel settore dei componenti per elettrodomestici. Un



Pietro Iotti, ad of Sabaf

riconoscimento importante in un anno difficile, motivato proprio dalla reazione dell'azienda alla crisi causata dalla pandemia. Sabaf è stata pronta a agire con grande capacità e resilienza per affrontare la crisi mantenendo sempre

al centro dell'azienda la persona, controllare i flussi di cassa nel rispetto della filiera, lanciare nuovi prodotti e servizi per fare fronte alle mutate richieste del mercato, impegnarsi verso la comunità circostante dimostrando senso di responsabilità sociale, rafforzare la comunicazione verso tutti gli stakeholder.

“Il riconoscimento attribuitoci, che giunge dopo quello dello scorso anno, conferma che stiamo mantenendo la giusta rotta anche in un contesto così complesso come l'attuale – ha dichiarato Pietro Iotti, Amministratore Delegato di Sabaf.

“È motivo di particolare soddisfazione perché è l'esito di un'indagine complessiva della nostra azienda, basata non soltanto su parametri numerici, ma anche sull'analisi della strategia, del modello di governance e del coinvolgimento di tutte le categorie di stakeholder. È un premio al lavoro dell'intera organizzazione, che ci incoraggia a proseguire nel percorso di crescita che abbiamo tracciato”.

Optimism for the recovery

An investigation carried out by Accenture research agency on 500 industrial managers worldwide shows a general optimism. 29% of interviewees foresee a fast economic recovery after coronavirus crisis, whereas 37% envisage a more gradual, but constant recovery; 26% are uncertain and just 8% are very pessimistic. Communications and the whole high tech will be the most dynamic sectors.

Ottimismo per la ripresa

Un'indagine condotta dalla società di ricerche Accenture su 500 manager industriali di tutto il mondo mostra un generale ottimismo. Il 29% degli intervistati prevede una rapida ripresa economica dopo la crisi del coronavirus, mentre il 37% vede una ripresa più graduale, ma costante; il 26% è incerto e solo l'8% è decisamente pessimista. I settori più dinamici saranno quelli delle comunicazioni e tutto lo high tech.

Good stability of the Austrian production

According to the surveys by FEEI trade association, in 2019 in Austria they manufactured electronic components globally worth 4.1 billion Euros, with the just -0.8% drop versus 2018. 85% of this production consists of semiconductors while the remaining 15% is mostly due to electromechanical components.

Buona tenuta della produzione austriaca

Secondo le rilevazioni dell'associazione di categoria FEEI nel 2019 sono stati prodotti in Austria componenti elettronici per un valore globale di 4,1 miliardi di euro, con una flessione solo del -0,8% sul 2018. L' 85% di questa produzione consta di semiconduttori, mentre il restante 15% si deve in massima parte ai componenti elettromeccanici.



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MARCO OLDRATI

RESPONSIBLE refrigeration

Professional contemporaneous kitchens are inhabited by an appliance rethought according to some relevant variables that are part of new trends, safety (food and technical) and sustainability (once more combined, hygienic and ecologic)

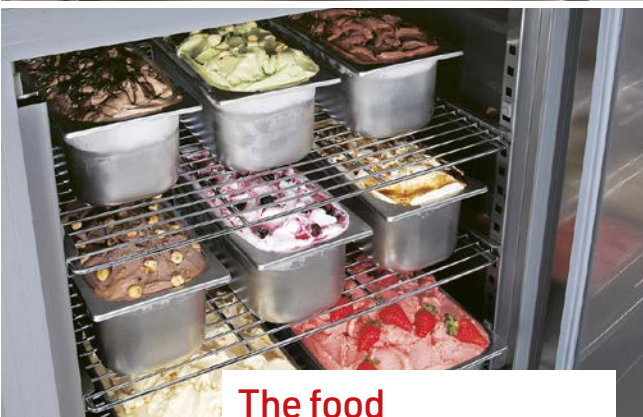
Domenico Tonello, by Astecrex, guides us in the exploration of the issue of professional refrigerator technology, illustrating us a situation that on one hand lives a strong technological evolution and on the other hand is subjected to pondered considerations in the industrial design field that are modifying both the design and the manufacturing of a key element for the existence of a professional kitchen. “Fundamental element without which the professional or domestic kitchen today might not exist: the food conservation is the pillar of each food preparation environment, especially in the differed meal era. The refrigerator works twenty-four hours a day, seven days a week and also twelve months a year, because we can hardly think of stopping the activity it performs, i.e. the prod-

uct maintenance at the right temperature and at the correct relative humidity.”

Therefore, it is impossible to set it aside...

To the extent that today, for its maintenance, the repair on the spot is almost fully given up and we instead replace the component, and not simply owing to programmed obsolescence reasons but to preserve the overall value of the instrument and of its content. This is the reason that has actually imposed of displacing the operation machine into the appliance head and of removing it from a hardly accessible position like the bottom or the rear, because it is fundamental to be able to enter rapidly the intervention zone. A failure of an oven or of a dishwasher certainly generates discomforts or organizational troubles, a refrigerator broken down is





The food conservation is the pillar of each food preparation environment, especially in the differed meal era

a sure economic damage because the foods conserved in a failed appliance must be thrown away.

A delicate issue from many points of view

From both a hygienic and economic point of view: let us not forget the professional refrigerator is an appliance subjected to quite severe rules, such as HACCP, but not only. Today we are dealing with appliances ruled by the energy certification, which is a real qualification license. The high-quality refrigerator is efficient and efficacious and this makes it an instrument designed to maintain the temperature at best with the lowest energy consumption.

In what does this efficiency effort result?

In a series of specific design and manufacturing actions: first of all, in the increase of the insula-

tion thickness, a choice that nowadays all manufacturers have made. Moreover, in a suitable research in the ambit of seals, which must maintain at best the established temperature and wetness, to avoid also in this case hygienic risks and excessive consumptions. It is worth underlining that the number of openings and closings of a professional refrigerator is not comparable to a household refrigerator's.

This concerns the “envelope”: what about the interior?

Professional refrigerators are not static, they have no interior temperature graduality. They all are conceived for the conservation of a single food typology and therefore it is fundamental to design air circulation flows that keep each cubic centimetre of available volume at constant values. This also to cope with a wrong use, hardly fought, like the very bad habit of arranging products against ventilation outlets, causing excessive frosting that deteriorates goods and overloads the compressor.

Have compressors changed, too, in virtue of the new gases it is mandatory to adopt?

They have changed a lot, to the extent that a very virtuous phenomenon has emerged: in an age in which the environmental protection legislation banishes highly efficient but ecologically noxious refrigerants from the market, compressors have generated more efficiency as compensation, proven by the fact that today a refrigerator runs at lower consump-



tions with often much better performances. We daresay necessity is the mother of invention.

A very interesting factor, which leads us to talk about another quite delicate topic: the life end and the recycling. After all, complex household appliances are at stake...

Yes, absolutely: today a professional refrigerator, when it reaches its service life end, has on average provided fifteen years of honest service and then it is based on often obsolete technology and components, especially in terms of refrigerants. R12 and R 22 can be still found in appliances about to be disposed. Besides, disposal is a complementary industry that has succeeded in giving a circular dimension to the production of professional appliances, often at high costs, but made necessary by a binding legislation, the compliance with which it is compulsory to demonstrate especially in public contexts, to be admitted to tenders.

Is anyway safety a determinant variable, to go back to what stated at the beginning?

Speaking of safety means designing an enormous circle: safety is many things in a professional refrigerator, starting from the full non-toxicity of contact materials, but it is also design that – as previously said – makes the appliance easily maintained, cleaned and correctly usable. We are mentioning some aspects that are specific of design, expected to use historical achievements, like raw



A professional refrigerator expresses the quality of the technologies it integrates only if it is correctly managed, maintained and used

materials and industrial semi-finished products, in a modality that at the same time can satisfy the requirements of HACCP, of work safety (for both the operator and the maintenance technician) and of energy efficiency. Matching this set of variables to improve the manufacturing quality is a relevant task.

This requires an ever-rising professionalism also in management, is it right?

If we consider what the characteristics of the maintenance activity were some years ago, it is almost unbelievable to assess what heritage of knowledge and competences the refrigerator technician is asked to have today. In the past he was entrusted with the simple task of setting the compressor in operation and of checking eventual missing leaks, nowadays the demand for continuity and quality of the “cold service” calls for a technician trained about the product and aware of numerous other instances, too, like the food one, which become a part of his curriculum. The manufacturer, in fact, without a competent maintenance technician cannot absolutely hypothesize of granting the appliance’s performance.

Not a little complexity!

And a manufacturing chain less and less split into compartments, and more and more dialoguing: a professional refrigerator expresses the quality of technologies and implementation choices it integrates only if it is correctly managed, maintained and used!

LA REFRIGERAZIONE RESPONSABILE

Quella che abita nelle cucine professionali contemporanee è un'apparecchiatura che è stata ripensata in funzione di alcune variabili rilevanti che fanno parte delle nuove tendenze, sicurezza (alimentare e tecnica) e sostenibilità (ancora una volta combinata, igienica ed ecologica). Alla ricognizione del tema della tecnologia dei frigoriferi professionali ci guida Domenico Tonello, di Astecrex, che ci illustra una situazione per certi versi in forte evoluzione tecnologica, per altri soggetta a ragionamenti nel campo del design industriale che stanno modificando sia la progettazione che la costruzione di un elemento chiave per l'esistenza di una cucina professionale. "Elemento importante senza il quale la cucina, professionale o domestica, oggi non potrebbe esistere: la conservazione alimentare è il perno di ogni ambiente di preparazione di cibo, soprattutto nell'epoca del pasto differito. Il frigorifero funziona acca ventiquattro, sette giorni su sette e anche dodici mesi all'anno, perché difficilmente si può pensare di fermare l'attività che svolge, quella del mantenimento del prodotto alla giusta temperatura e alla corretta umidità relativa."

Quindi è impossibile farne a meno...

Al punto che per mantenerlo oggi non si ricorre quasi più alla riparazione in loco, ma si sostituisce il pezzo e non semplicemente per ragioni di obsolescenza programmata, ma per conservare il valore complessivo dello strumento e del suo contenuto. Questa è la ragione che ha praticamente imposto di spostare la macchina di funzionamento in testa all'apparecchiatura e di toglierla da una posizione difficilmente accessibile come il fondo o il retro, perché è fondamentale poter accedere rapidamente alla zona su cui intervenire. Un blocco funzionale di un forno o di una lavastoviglie generano scomodità o problemi organizzativi, un frigorifero non funzionante è un danno certo, economico, perché la merce conservata in un apparecchio che non funziona deve essere scartata.

Una questione delicata da molti punti di vista

Sia da un punto di vista igienico sia da un punto di vista economico: non dimentichiamoci che il frigorifero professionale è uno strumento sottoposto a regole piuttosto ferree come l'HACCP, ma non solo. Oggi siamo in presenza di apparecchiature che sono soggette alla certificazione energetica, che è una vera e propria patente di qualifica. Il frigorifero di qualità è efficiente oltre che efficace e questo ne fa uno strumento progettato per mantenere al meglio la temperatura con il minimo consumo di energia.

In che cosa si traduce questo sforzo per l'efficienza?

In una serie di azioni progettuali e produttive specifiche: in primo luogo nell'aumento di spessore dell'isolante, una scelta che ormai tutti i produttori hanno fatto. Ma ancora in una ricerca adeguata sul fronte delle guarnizioni, che devono mantenere al meglio la temperatura e l'umidità prescelte per evitare anche qui rischi igienici oltre che consumi eccessivi. Non dimentichiamoci che il numero di aperture e chiusure di un frigorifero professionale non è comparabile con quello di un frigorifero domestico.

Questo per quanto riguarda "l'involucro": all'interno?

I frigoriferi professionali non sono statici, non hanno gradualità di temperatura interna. Sono tutti pensati per la conservazione di una sola tipologia di cibo e quindi è fondamentale progettare flussi di circolazione d'aria che mantengano ogni centimetro cubo di volume disponibile a valori costanti. Questo anche per far fronte ad un cattivo uso, difficile da

combattere, come la pessima abitudine di addossare prodotti alle bocchette di ventilazione, causando brinature eccessive che deteriorano la merce e sovraccaricano il compressore.

Anche i compressori sono cambiati, in ragione dei nuovi gas che oggi è obbligatorio adottare?

Sono cambiati molto, tant'è vero che si è prodotto un fenomeno decisamente virtuoso: in un'epoca in cui la legislazione per la tutela ambientale toglie dal mercato refrigeranti molto efficienti ma ecologicamente pericolosi i compressori hanno generato maggiore efficienza a compensazione, tanto che oggi un frigorifero viaggia su consumi inferiori con prestazioni spesso decisamente migliori. Come a dire che il bisogno ha aguzzato l'ingegno.

Un fattore decisamente interessante, che ci porta a parlare anche di un altro argomento piuttosto delicato: il fine vita e il recupero. In fin dei conti stiamo parlando di elettrodomestici complessi...

Decisamente: oggi un frigorifero professionale che giunge a fine vita ha fatto in media una quindicina d'anni di onesto servizio e quindi ha in sé una tecnologia e componenti spesso datati, soprattutto in materia di refrigeranti. R12 ed R22 possono essere ancora riscontrati in apparecchi che vengono avviati allo smaltimento. E questa è un'industria complementare, quella dello smaltimento, che è giunta a dare una dimensione circolare alla produzione di apparecchiature professionali, a costi spesso elevanti, ma resi necessari da una legislazione cogente che soprattutto nei contesti pubblici è obbligatorio dimostrare di ottemperare per poter accedere ad appalti e gare.

La sicurezza è comunque una variabile determinante, per tornare a quanto dicevamo all'inizio?

Parlare di sicurezza è come disegnare un enorme cerchio: sicurezza è molte cose in un frigorifero professionale, a cominciare dalla totale atossicità dei materiali di contatto, ma è anche design che rende l'apparecchio facilmente manutenibile, pulibile, utilizzabile correttamente. Stiamo parlando di aspetti che sono specifici della progettazione, che deve utilizzare acquisizioni storiche come materie prime e semilavorati industriali in una modalità che soddisfi in pari tempo le esigenze dell'HACCP, della sicurezza del lavoro (sia per l'operatore sia per il manutentore), dell'efficienza energetica. Mettere d'accordo questo set di variabili in maniera da migliorare la qualità produttiva è un compito non da poco.

Il che richiede una professionalità sempre più alta nella gestione.

Se pensiamo a come era il lavoro di manutenzione anni addietro è quasi incredibile vedere qual è il capitale di conoscenze e competenze che oggi richiediamo al frigorista: un tempo gli assegnavamo il semplice incarico di far funzionare il compressore e controllare l'eventuale mancanza di perdite, oggi la richiesta di continuità e di qualità del "servizio freddo" richiede un tecnico preparato sul prodotto e sensibile anche a numerose altre istanze, fra le quali quella alimentare, che diventano una parte del suo curriculum, perché il produttore – senza un manutentore competente – non può assolutamente pensare di garantire la prestazione dell'apparecchiatura.

Una complessità non da poco!

E una filiera sempre meno compartimentata e sempre più dialogante: un frigorifero professionale esprime la qualità delle tecnologie e delle scelte costruttive che incorpora solo se è gestito, mantenuto e usato correttamente!

The ideal solution for FAST COOKING

Many supermarkets, petrol stations and even clothing stores nowadays offer also warm snacks to their customers. However, the space at the counter is always very small and the time at disposal of hungry customers is short: high-speed compact ovens are the solution to this problem, thanks to the use of EC fans by ebm-papst

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ore and more people cook at home but they prefer eating out, at any time of the day. Traditional restaurants are no longer the

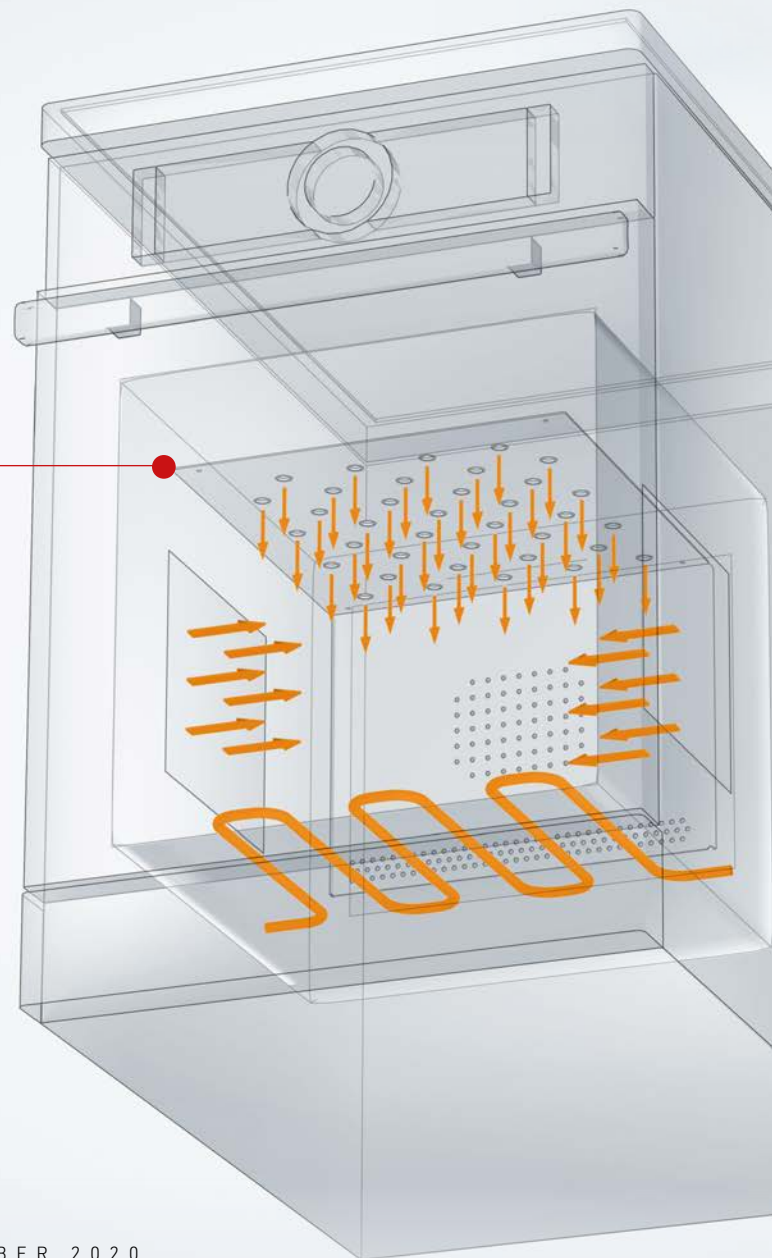
preferred destination, we eat inside a mall, before or after shopping, or quickly in a bar, after work. Without anyway giving up the best taste.

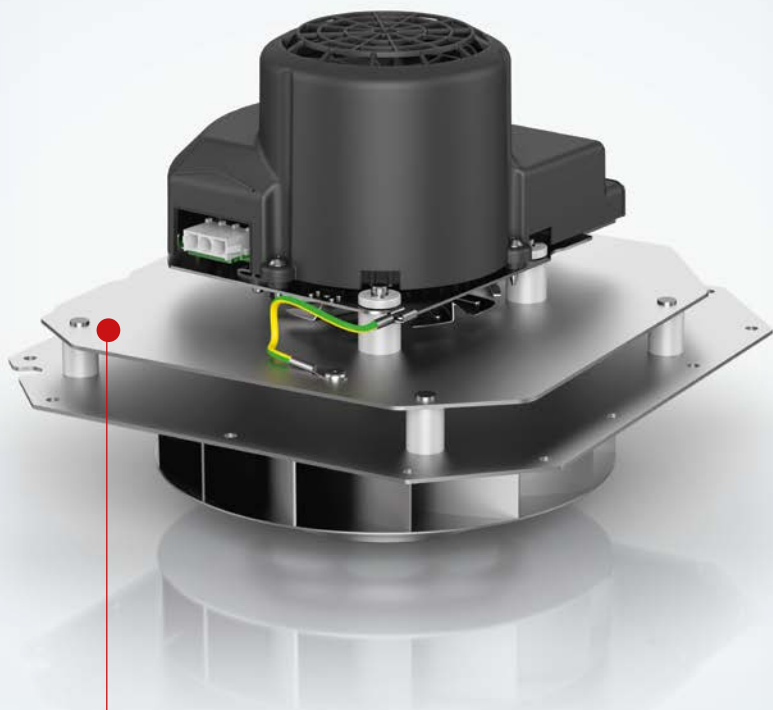
The food industry has reacted to this new trend: a broad range of frozen products allows shops and bars to offer a varied menu, even without chefs. Moreover, the front cooking is more and more used: customers like watching the food preparation but this requires the availability of a suitable user-friendly appliance, with a pre-set cooking programme, so that pizza, for instance, is rightly baked and crunchy.

Consequence: the bar or shop counter needs high power (to be able to cook in very few minutes) in a very narrow space and compact high-performance ovens are the ideal solution.

The oven technology has been tested for a long time

1. The efficient combination among hot air convection, radiation and microwave technology are the optimal mix of compact ovens that minimize food preparation and cooking times.





2. The highest power in very narrow space: thanks to EC technology, the VBS 170 fan needs the minimum installation space. The ideal solution for high-performance compact ovens.

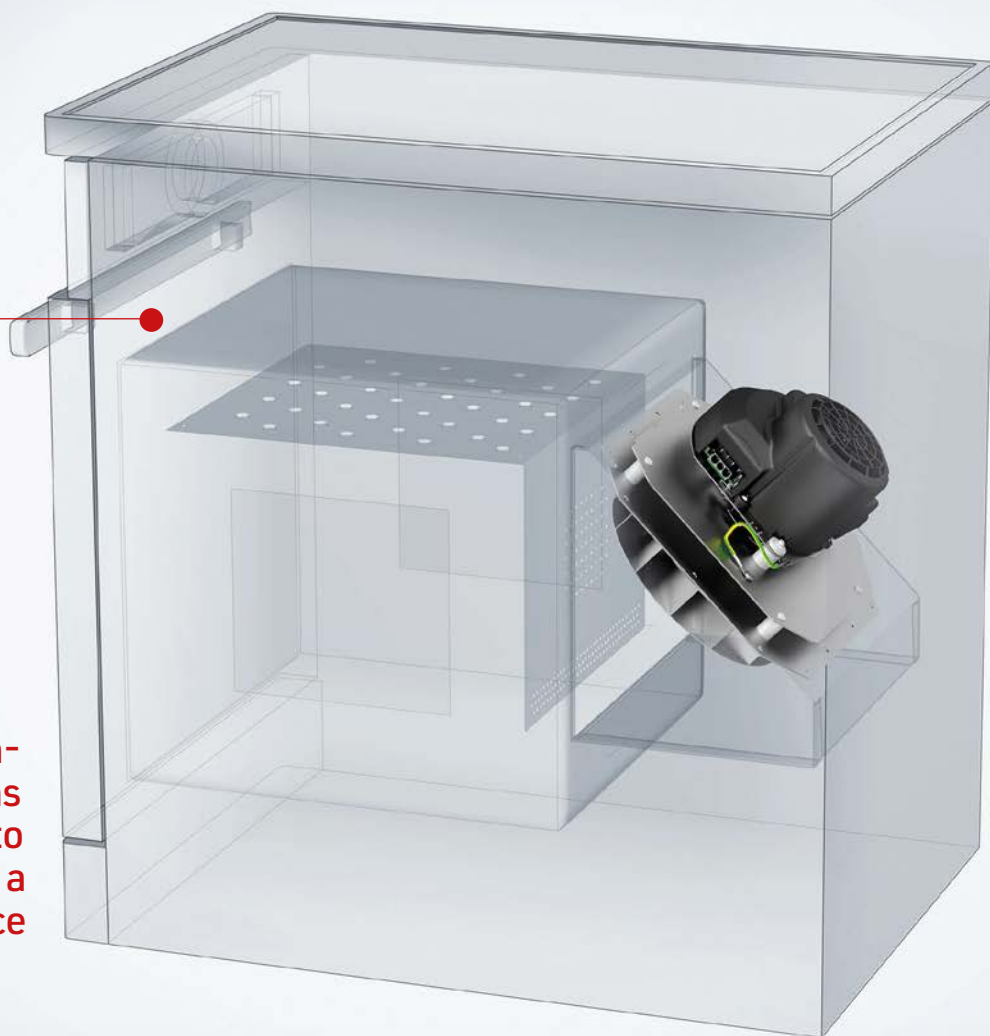
but, in this case, the space at disposal of fans for the hot air motion plays a fundamental role because it is very small. Here, standard asynchronous motors cannot reach a power density that can be compared to an electronic fan.

Best performance in a compact package

Radial VBS170 fans by ebm-papst based on EC technology has the advantage to require the minimum installation space and, in spite of that, they assure high power. The electronics mounted around the motor assures compactness and enables speed modulation of the fan through PWM signal without any further components.

The utmost 5300-rpm speed and the backward-curved impeller guarantee the highest aerodynamic efficiency with low energy consumption.

Ebm-papst engineers worked together with oven pro-



3. The VBS170 fan by ebm-papst is properly implemented to suit any necessary installation position inside the application (with the exception of the pending motor).

Compact high-performance ovens are the ideal solution to obtain high power in a very small space

ducers since the initial stage of the project, to optimize at best the efficiency of the fan and then of the whole application, too.

Another advantage of EC fans is their dynamics: they accelerate very quickly, up to the demanded speed. Extremely robust and reliable, they easily reach 16 hours a day of constant operation (which are not a rarity for these oven typologies).

Resistant to heat, silent and compliant with hygienic regulations

Due to the compact design of this oven typology, however the heat source and the motor are in strict contact. High temperatures do not reach electronic motor: ebm-papst engineers have relied on their several years of experience in the heating sector and they have protected windings, bearings and electronics by means of an adequate thermal insulation system. If necessary, it is possible to add a cooling fan to the electronic board that further helps remove from electromechanical components.

Since ovens are generally positioned close to consumers, the noise becomes a decisive factor and the silent operation is another highlight of this fan. Besides, the motor is fixed on a special softened support that minimizes vibrations.

The impeller is made of stainless steel to prevent the rust formation in the wet and hot environment where it is mounted.

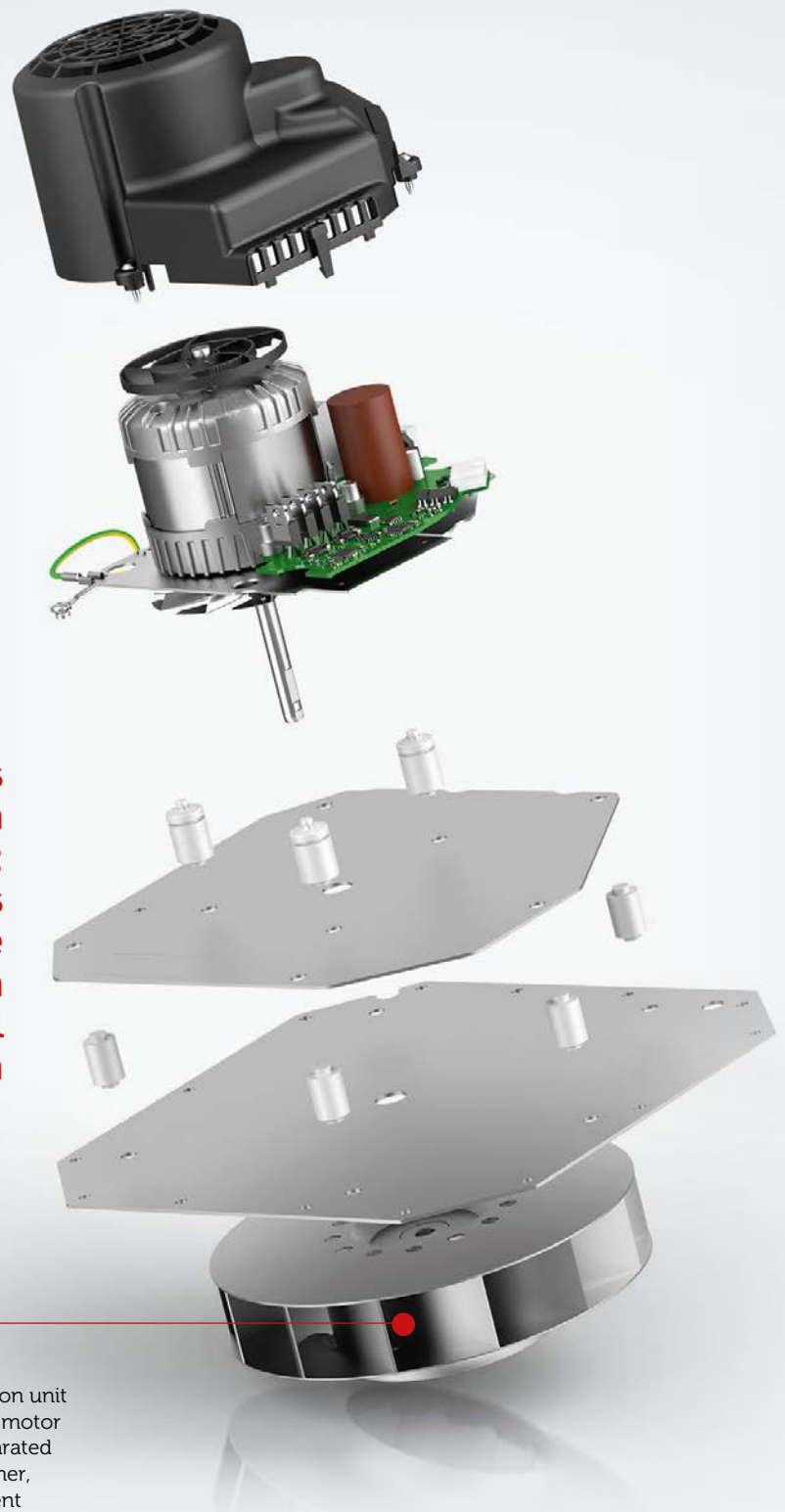
In this way, ebm-papst fans complied with a further essential requirement of the food sector: the conformity with hygienic regulations.

Ready for the future

Digitalization has become part of professional kitchens for a long time: many existing devices are smart and connected (IoT), enabling a centralized management of the cooking programmes of dozens of ovens. The EC technology by ebm-papst can be easily

High temperatures do not reach electronic motor: windings, bearings and electronics are protected by an adequate thermal insulation system

4. The ventilation unit and the motor are separated each other, to prevent overheating caused by high temperatures. (15-time faster than standard ovens).



integrated into existing communication structures, striking example of the characteristics encompassed by our GreenIntelligence logo: it identifies the possibility of digital connection, of operating and controlling products with digital controls, of carrying out remote monitoring and self-diagnosis of critical operational conditions. Features that exceed by far the mere advantages of ebm-papst's EC technology and green philosophy.

LA SOLUZIONE PER LA COTTURA RAPIDA

Moltissimi supermercati, benzinai e persino negozi di vestiti offrono ormai ai loro clienti anche snack caldi. Ma lo spazio al banco è sempre molto ridotto ed il tempo a disposizione dei clienti affamati è limitato: i forni compatti ad alta velocità di cottura sono la soluzione a questo problema, grazie all'utilizzo dei ventilatori EC di ebm-papst. Sempre più persone non cucinano a casa, ma preferiscono mangiare fuori, in ogni momento della giornata.

I classici ristoranti non sono più la destinazione prescelta, si mangia all'interno di un centro commerciale prima o dopo aver fatto la spesa o velocemente in un bar, dopo il lavoro. Senza tuttavia rinunciare al massimo del gusto. Il comparto alimentare ha reagito a questa nuova tendenza: una vasta gamma di prodotti surgelati permette ai negozi e ai bar di offrire un menu vario, senza disporre

di uno chef. Inoltre, sempre più utilizzato è il front cooking: i clienti vogliono assistere alla preparazione degli alimenti, ma ciò presuppone la presenza di un apparecchio appropriato, facile da utilizzare, con un programma di cottura pre-impostato, in modo che, per esempio, la pizza risulti cotta al punto giusto e sia croccante. Conseguenza: sul bancone del bar o del negozio è necessaria una potenza elevata (per poter cuocere in pochissimi minuti) in uno spazio estremamente ridotto e i forni compatti ad alta performance sono la soluzione ideale.

La tecnologia dei forni è testata da tempo, ma in questo caso lo spazio a disposizione dei ventilatori per la movimentazione dell'aria calda gioca un ruolo fondamentale, in quanto è molto limitato. Qui, i motori asincroni tradizionali non possono raggiungere una densità di potenza comparabile ad un ventilatore elettronico.

Massima performance in un pacchetto compatto

I ventilatori radiali VBS170 di ebm-papst a tecnologia EC hanno il vantaggio di richiedere il minimo spazio di installazione e, nonostante ciò, garantire una potenza elevata. La dimensione compatta è data dal fatto che l'elettronica è installata intorno al motore e dà la possibilità di modularne la velocità tramite il segnale digitale PWM, senza l'ausilio di ulteriori componenti. La velocità massima di 5300 rpm e la girante a pale rovesce assicurano la massima efficienza aerodinamica con un consumo energetico ridotto. Gli ingegneri di ebm-papst lavorano a stretto contatto con i produttori dei forni già dalla fase iniziale del progetto per poter ottimizzare al massimo l'efficienza del ventilatore e quindi anche dell'intera applicazione.

Un altro vantaggio dei ventilatori EC è la loro dinamicità: accelerano molto rapidamente fino ad arrivare alla velocità richiesta. Estremamente robusti ed affidabili, raggiungono senza problemi le 16 ore di funzionamento continuo ogni giorno (che non sono una rarità per queste tipologie di forni).

Resistente al calore, silenzioso e conforme alle normative igieniche

A causa del design compatto di questa tipologia di forni, la fonte di calore e il motore sono a stretto contatto. Le alte temperature non raggiungono il motore elettronico: gli ingegneri di ebm-papst si sono affidati ai loro numerosi anni di esperienza nel settore del riscaldamento e hanno protetto avvolgimenti, cuscinetti

ed elettronica attraverso un adeguato sistema di isolamento termico. Se necessario, sulla parte di alloggiamento della scheda elettronica, può essere installata una ventolina di raffreddamento che aiuta ulteriormente ad espellere il calore dai componenti elettromeccanici. Essendo i forni collocati normalmente vicino al consumatore, la rumorosità diventa un fattore decisivo e la silenziosità è un altro punto di forza di questo ventilatore. Il motore è inoltre fissato su un supporto ammortizzato speciale che riduce al minimo le vibrazioni. La girante è in acciaio inox per evitare il formarsi della ruggine nell'ambiente umido e caldo in cui viene montata. In questo modo i ventilatori ebm-papst soddisfano un ulteriore ed importantissimo requisito del settore alimentare: la conformità alle normative igieniche.

Pronti per il futuro

La digitalizzazione è da tempo entrata a far parte delle cucine professionali: molti dispositivi esistenti sono smart e connessi in rete (IoT), permettendo una gestione centralizzata dei programmi di cottura di decine di forni. La tecnologia EC di ebm-papst, può essere facilmente incorporata in strutture comunicative esistenti, esempio lampante delle caratteristiche che il nostro logo GreenIntelligence racchiude: esso infatti identifica la possibilità di connettersi digitalmente, di attivare e controllare i prodotti con comandi digitali, di effettuare monitoraggio remoto e autodiagnosi degli stati operativi critici. Caratteristiche che vanno ben oltre i semplici vantaggi della tecnologia EC e la filosofia green di ebm-papst.



The hood **CORE**

The implementation of the most important component of the suction hood, the electric motor, includes a series of phases in which each aspect must be cared and monitored attentively. For EMC this is the prerequisite to obtain a hood with the high requisites demanded by a more and more exacting market

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he evolution of the European market of the suction hood for domestic use leads the manufacturers of suction blowers to the research of more and more challenging targets, especially in terms of energy efficiency, noise and product reliability. The satisfaction of these goals makes the manufacturing of the motors and blowers that equip the medium/high-end segment of the hood market more complex. The practical consequence of this evolution imposes that, since the early production stages of the electric motor, everything

has been determined according to parameters of process controls that can be assessed and known through capability analyses (Cp/Cpk) based on statistical and historical data that can be measured by means of highly automated production processes.

The engineer Nazario Malerba, Quality Assurance Manager in EMC, explains, phase by phase, the process peculiarities.

The stator winding

The component considered the core of each household appli-



The manufacturers of suction blowers try to reach more and more challenging targets, especially in terms of energy efficiency, noise and product reliability

ance is the electric motor and, Mr Malerba explains, the first determinant phase for its correct implementation is the stator winding. Eventual anomalies and/or possible limit conditions of the various machine setups, in this process phase, would imply alterations of the rotating electromagnetic stator field with the electromagnetic field induced in the rotor, with the consequent increase of the latter's inductive noise, besides a decrease of the average life of the finished product.

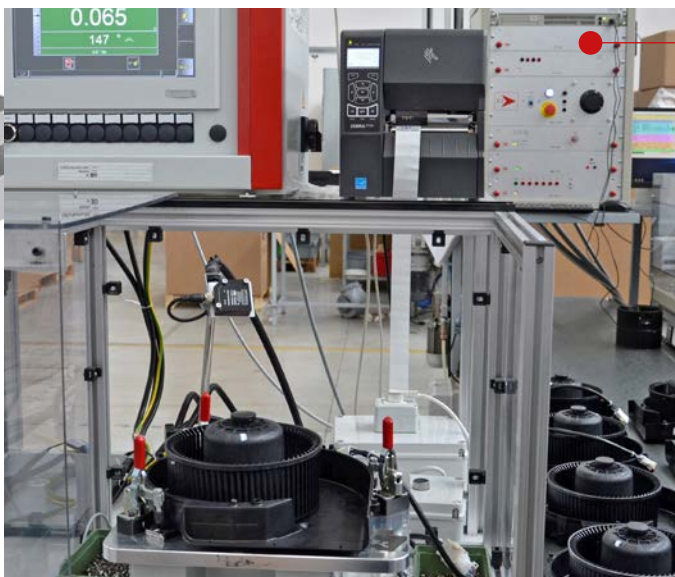
Therefore, in this first manufacturing phase, the constant monitoring of those process parameters, deemed fundamental for the correct product manufacturing, becomes essential, to intervene in sudden and targeted manner on the possible causes that can determine an excessive process variability.

A constant monitoring is considered relevant and it involves benefits if the collected data are



Nazario Malerba, Quality Assurance Manager in EMC

Balancing work station



measured correctly and if the measurement system is reproducible and repeatable.

All that makes sense if integrated into a production context with a high automation degree where winding and turn insertion operations are carried out by automated equipment and anthropomorphic robots.

The main variables considered critical and then fundamental for the correct “centred” capability of the production process of wound stators are the speed and the tensile strength of the copper wire winding, as well as the turn insertion force into the stator slots. The study a priori of correct process parameters and the successive capability analysis executed allow keeping always under control the product qualitative trend for each single job order. All considerations concerning the critical process aspects, in fact, already originate in design phase, through analyses of process failure or defect modalities through D-FMEA method. Besides the aspects of electromagnetic nature, those aspects regarding the geometrical sizing of the stator core lamination are examined, to assure an adequate stator geometry suiting the automatic machining process it undergoes.

FDE-Fluid Dynamic Efficiency analysis

One of the fundamental aspects for state-of-art products is satisfying pre-established aeraulic efficiency values. The overall efficiency value of a fan can be influenced by various aspects. Ensuring the

All stages of control have to be integrated into a production context with a high automation degree and anthropomorphic robots

satisfaction of the efficiency target means keeping under control all those variables deemed critical of the single components that constitute the fan.

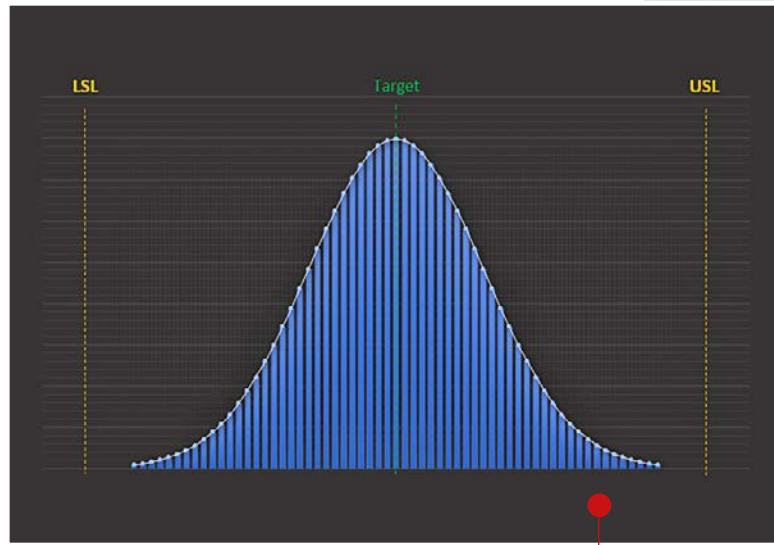
However, the single monitoring of the parameters of the various production processes is not sufficient to assure the correct measurement of the FDE value, for that reason it becomes necessary to be able to assess also all further factors that depend on the interactions springing only after the coupling of single fan components one another. The “capability” of each single process, in fact, is an analysis that indirectly acts on the fluid-dynamic efficiency value of the fan.

A direct and “truthful” measurement of the FDE value has real practical confirmation when it is directly detected on the finished product. When judged necessary by EMC, in fact, the energy efficiency control is fully implemented on the production of fans. The measurements directly taken prevalingly refer to the values of static and differential pressure of the airflow, such measurements are analysed individually on the finished product in the testing line by means of instruments purpose-

ly studied and calibrated according to measuring methods regulated by IEC standards and validated by EMC through accurate assessment analyses according to MSA technique.

Due to the analyses carried out through MSA technique, in fact, it was possible to ascertain how climatic conditions such as temperature, pressure and relative humidity of the test environment influence the final FDE value measured. Therefore, to obtain a realistic reliable measured value, it is necessary to adopt accurate standardization methods but at the same time to provide for a daily “self-teaching” of test benches.

The continuous monitoring of such an important parameter like the fluid-dynamic efficiency is constantly kept under control by means of Cp/Cpk capability analyses of the aeraulic efficiency value measured. Eventual deviations of the measured values from target values imply an immediate research/study about the possible causes of the anomalies found. The performed controls originate from the finished product and reach the single components of the blower, comparing in the specific case the qualitative trend of the whole production batch examined. Finally, the study and the evaluation of the defects found both on the finished product and on single components are carried out through Pareto analysis. The constant improvement aim is really efficacious if the analysis technique is appropriate.

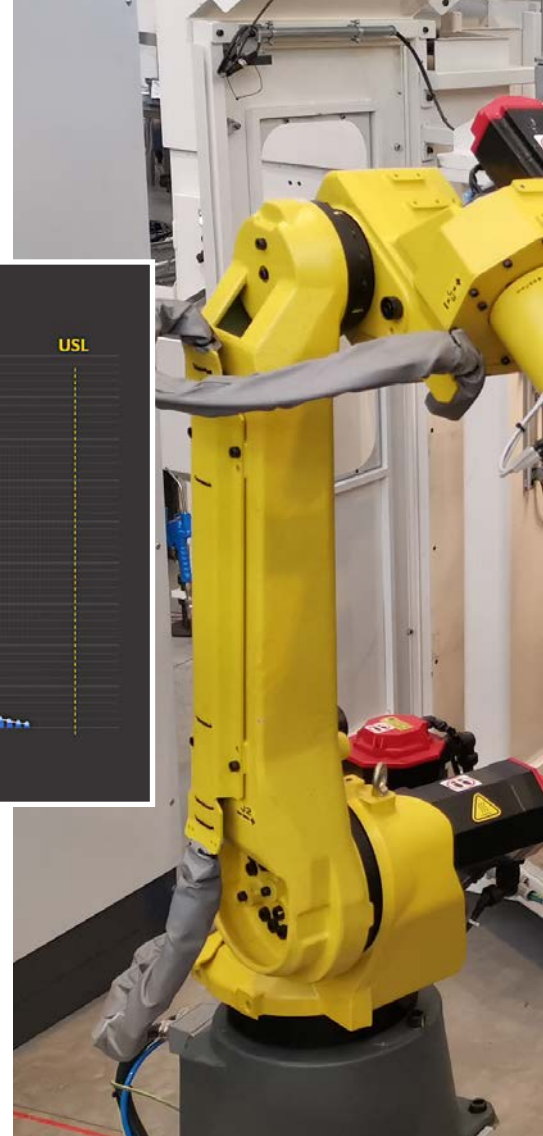


Vibration analysis

One of the aspects on which the market of suction hoods for domestic use has more focused in recent years is the noise level of the finished product. The noise is the final effect generated by a vibration. Vibrations inside suction hoods can be of various nature and generally classified in two macro categories: vibration of electromagnetic type, which originate exclusively from the electric motor, and vibrations of mechanical type that depend on various aspects and primarily on the vibrations of the turbulences of the airflow moved during the process

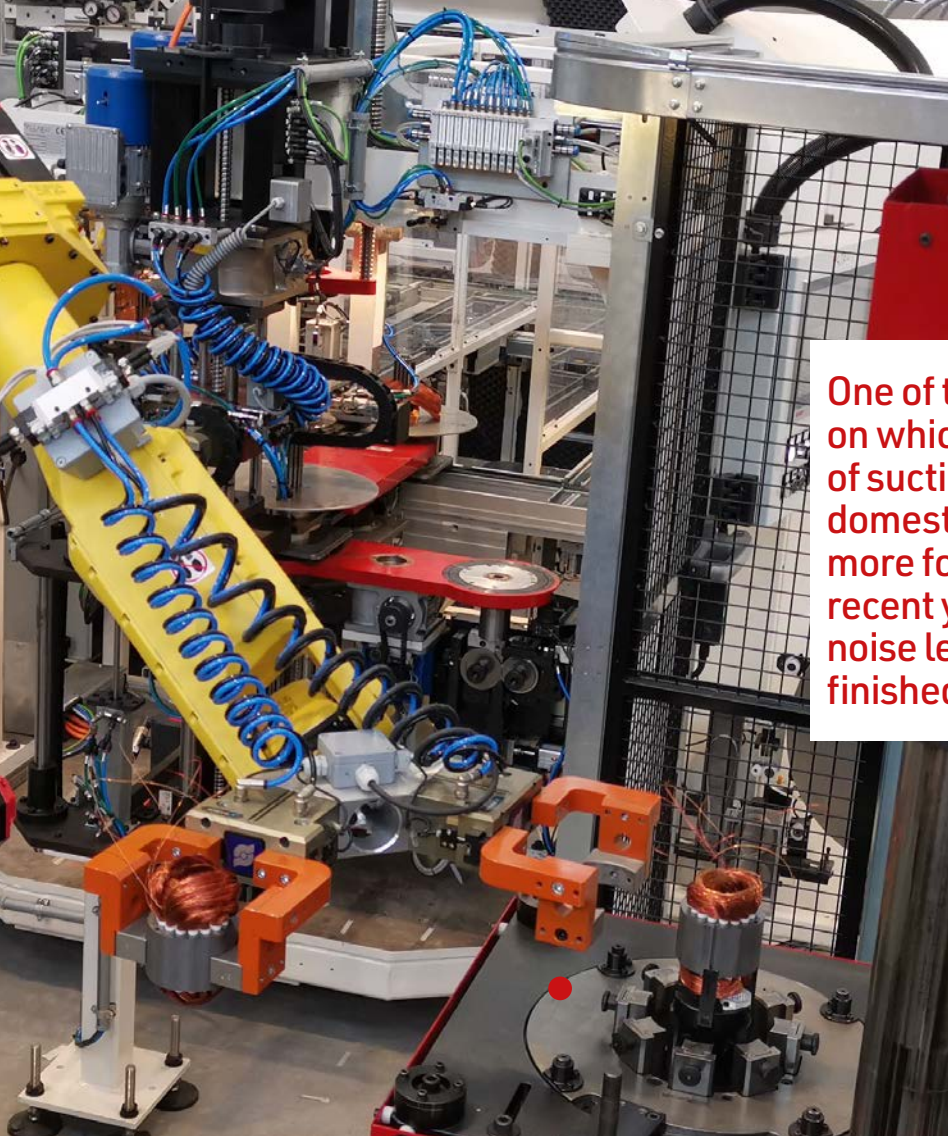
The Cp/Cpk capability analyses

The air motion can be split as the whole of two phenomena: one is deterministic and concerns the air motion inside the fan volute, the other is non-deterministic and refers to the stochastic process of the turbulence of the airflow itself



of air suction/ejection, as well as on possible vibrations deriving from impeller unbalance.

The air motion can be split as the whole of two phenomena: one is deterministic and concerns the air motion inside the blower volute, the other is non-deterministic and refers to the stochastic process of the turbulence of the airflow itself. The evaluation of such aspects already stems from the first CAD design, in which it is possible to consider both the aspects of deterministic nature and those of random nature, therefore having at disposal a priori all those information that can justify/identify the most suitable solution in terms of aerodynamic/vibration



One of the aspects on which the market of suction hoods for domestic use has more focused in recent years is the noise level of the finished product

benefits. The aspect concerning the balancing degree of the impeller is instead a very complex issue, largely debated in recent years in the suction hood sector. Monitoring and assuring a certain stability to the impeller moulding process is more and more fundamental but, in practice, it was possible to assess how the single stability of the impeller manufacturing process not always can, “alone” ensure the high balancing degree demanded for some high-end products. When the impeller features a particular manufacturing geometry, in fact, just the control of the moulding process is not sufficient to guarantee its correct balancing. Therefore,

Full automatic stator winding process

it becomes necessary to control the present vibration value directly on the finished product, analysing the balancing degree of the fan at different operation rates of the impeller.

With the same unbalancing values, in fact, the vibration effect is directly proportional to the number of revolutions with which the impeller works.

For all these reasons, to control, by means of “capability” analysis, the unbalance values measured during the final fan testing becomes fundamental. Such analysis is reliable and truthful if the measuring method used has been accurately studied and calibrated, correctly implemented and validated

by means of MSA technique. By implementing such control method, it is possible to guarantee the conformity with the maximum admissible unbalance value for each product range.

Besides the above-described control typology, when necessary it is possible to implement in line also a 100% balancing of the impeller/fan system. The in-line balancing is a very expensive process in terms of working cycle duration but, besides assuring a high product quality in terms of vibrations, it also allows the reduction of the defects that can be detected only in the final product testing.

Target: finished product quality

Therefore, the overall quality level of the finished product depends on various aspects, all mutually correlated; it already springs from the manufacturing solutions undertaken in the first design phases, it concretizes with the accurate choice of the critical parameters to be kept always under control and it consolidates by means of validations of the various measuring systems used through MSA technique.

All these aspects, in view of a production oriented to the Lean Management logic, become a totalizing focus of the company itself, demonstrating how the APQP (Advanced Product Quality Planning) approach, although applied in “lean” manner, succeeds in granting the quality levels of the finished product that the current market of suction hoods today demands for.

IL CUORE DELLA CAPPA

La produzione del motore elettrico, il componente più importante della cappa aspirante, passa attraverso una serie di fasi di cui ogni aspetto è da monitorare con estrema attenzione. Per EMC è questo il presupposto per ottenere una cappa con gli alti requisiti richiesti da un mercato sempre più esigente.

L'evoluzione del mercato europeo della cappa di aspirazione ad uso domestico porta i produttori dei gruppi aspiranti alla ricerca di target sempre più sfidanti soprattutto in termini di efficienza energetica, rumore ed affidabilità del prodotto. Il soddisfacimento di questi obiettivi rende sempre più complessa la costruzione dei motori e dei ventilatori che equipaggiano il segmento di fascia medio/alta del mercato della cappa. La conseguenza pratica di questa evoluzione rende necessario che sin dalle prime fasi di produzione del motore elettrico tutto venga determinato in base a parametri riscontrabili e noti dei controlli di processo a mezzo di analisi di capability (Cp/Cpk) basati su dati statistici, storici e misurabili per mezzo di processi di produzione altamente automatizzati. A raccontare, fase per fase, le peculiarità del processo è l'ingegnere Nazario Malerba, Quality Assurance Manager in EMC.

L'avvolgimento statorico

Il componente considerato il cuore di ogni elettrodomestico è il motore elettrico e, spiega l'ingegnere Malerba, la prima fase determinante per la sua corretta realizzazione è quella dell'avvolgimento statorico. Eventuali anomalie e/o possibili condizioni limite dei vari settaggi

macchina, in questa fase del processo, comporterebbero alterazioni del campo elettromagnetico rotante di statore con il campo elettromagnetico indotto nel rotore con conseguente aumento del rumore induttivo dello stesso, oltre che una riduzione della durata media del prodotto finito. In questa prima fase produttiva diventa pertanto fondamentale avere un monitoraggio continuo di quei parametri di processo ritenuti essenziali per la corretta realizzazione del prodotto, in modo da poter intervenire in maniera repentina e mirata sulle possibili cause che possono provocare una eccessiva variabilità del processo.

Il mercato in continua evoluzione lancia ai produttori di cappe sfide sempre più complesse

Un monitoraggio continuo è considerato rilevante e comporta beneficio se i dati acquisiti sono misurati correttamente e se il sistema di misura è riproducibile e ripetibile. Tutto ciò ha senso se inserito in un contesto produttivo con un elevato grado di automazione in cui le operazioni di bobinatura e di inserimento spire vengono svolte tramite attrezzature automatiche e robot antropomorfi. Le principali variabili ritenute critiche e quindi fondamentali alla corretta e "centrata" capacità del processo produttivo degli statori avvolti sono la velocità e la forza di tensione di bobinatura del filo di rame, nonché la forza

di inserimento delle spire all'interno delle cave di statore. Lo studio a priori dei corretti parametri di processo e la successiva analisi di capability svolta permettono di avere sempre sotto controllo l'andamento qualitativo del prodotto per ogni singola commessa di produzione. Tutte le considerazioni inerenti gli aspetti critici del processo, originano già in fase progettuale, infatti, tramite analisi della modalità di guasto o di difetto del processo mediante metodo D-FMEA, oltre agli aspetti di natura elettromagnetica, vengono presi in esame anche quegli aspetti relativi al dimensionamento geometrico del lamierino statorico, in modo da garantire una geometria dello statore consona ed appropriata al processo di lavorazione automatico a cui è soggetto.

L'analisi FDE- Fluid Dynamic Efficiency

Uno degli aspetti fondamentali per i prodotti di nuova generazione è quello di soddisfare prestabiliti valori di efficienza aeraulica. Il valore di efficienza complessivo di un ventilatore può essere influenzato da vari aspetti. Garantire il soddisfacimento del target di efficienza, significa tenere sotto controllo tutte quelle variabili ritenute critiche dei singoli componenti che costituiscono il ventilatore. Il singolo monitoraggio dei parametri dei vari processi produttivi però, non è sufficiente a garantire la corretta misurazione del valore di FDE richiesto, per tale

motivo si rende necessario poter valutare anche tutti gli ulteriori fattori dipendenti dalle interazioni che scaturiscono solo dopo l'accoppiamento dei singoli componenti del ventilatore tra loro. Infatti la "capability" di ogni singolo processo è una analisi che agisce in maniera indiretta sul valore di efficienza fluidodinamica del ventilatore.



Una misura diretta e “veritiera” del valore di FDE ha un reale riscontro pratico quando viene rilevata direttamente sul prodotto finito. Infatti quando ritenuto necessario da EMC, il controllo dell'efficienza energetica è implementato al 100% sulla produzione dei ventilatori.

Le misure prelevate in maniera diretta si riferiscono prevalentemente ai valori di pressione statica e differenziale del flusso d'aria, tali misurazioni vengono analizzate singolarmente sul prodotto finito in linea di collaudo a mezzo di strumentazioni appositamente studiate e calibrate secondo metodi di misura normati da standard IEC nonché validate da EMC a mezzo di accurate analisi di valutazioni secondo tecnica MSA.

Grazie alle analisi svolte a mezzo tecnica MSA infatti, si è potuto constatare come le condizioni climatiche quali la temperatura, pressione ed umidità relativa dell'ambiente di prova influenzano il valore finale di FDE misurato.

Per avere pertanto un valore misurato realistico ed affidabile, si rende necessario adottare accurati metodi di normalizzazione ma allo stesso tempo prevedere un “autoapprendimento” giornaliero dei banchi da test. Il monitoraggio continuo di un parametro così importante come l'efficienza fluidodinamica è costantemente tenuto sotto controllo a mezzo di analisi di capability Cp/Cpk del valore efficienza aeraulica misurato. Eventuali scostamenti dei valori misurati rispetto ai valori di target, comportano una ricerca/studio immediato ed accurato sulle possibili cause delle anomalie

riscontrate. Le verifiche svolte originano dal prodotto finito per giungere fino ai singoli componenti del ventilatore, confrontando nello specifico l'andamento qualitativo dell'intero lotto di produzione preso in esame.

Infine lo studio e la valutazione delle difettosità riscontrate sia sul prodotto finito che sui singoli componenti, vengono svolte tramite analisi di Pareto. L'ottica di miglioramento continuo è realmente efficace se la tecnica di analisi risulta appropriata.

L'analisi delle vibrazioni

Uno degli aspetti su cui si è maggiormente concentrato negli ultimi anni il mercato delle cappe aspiranti ad uso domestico è quello del livello di rumorosità del prodotto finito. Il rumore è l'effetto finale generato da una vibrazione.

Le vibrazioni all'interno delle cappe aspiranti possono essere di varia natura e generalmente classificate in due macro categorie: vibrazioni di tipo elettromagnetico, che originano esclusivamente dal motore elettrico, e vibrazioni di tipo meccanico che dipendono da diversi aspetti, in primis dalle vibrazioni generate dalle turbolenze del flusso d'aria movimentato durante il processo di aspirazione/espulsione dell'aria oltre che da possibili vibrazioni derivanti da squilibrio della girante.

La movimentazione dell'aria è suddivisibile come l'insieme di due fenomeni: uno deterministico, inerente alla movimentazione dell'aria all'interno della voluta del ventilatore, l'altro invece non deterministico, riferito al processo stocastico della turbolenza del flusso d'aria stesso.

La valutazione di tali aspetti nasce già dalle prime fasi della progettazione, in cui è possibile prendere in considerazione sia gli

Grande attenzione è rivolta alla riduzione delle vibrazioni e quindi alla diminuzione della rumorosità

aspetti di natura deterministica che quelli di natura aleatoria, disponendo pertanto di tutte quelle informazioni a priori che possono giustificare/individuare la soluzione più adatta in termini di benefici aerodinamici/vibrazioni.

L'aspetto inerente al grado di equilibratura della girante è invece un tema molto complesso e molto discusso negli ultimi anni nel settore delle cappe aspiranti. Risulta sempre più fondamentale monitorare e garantire una certa stabilità, al processo di stampaggio della girante, ma a livello pratico si è potuto constatare come la singola stabilità del processo produttivo della girante non è sempre in grado di assicurare da “sola” l'elevato grado di equilibratura richiesto per alcuni prodotti high-end. Infatti quando la girante presenta una particolare geometria costruttiva il solo controllo del processo di stampaggio non è sufficiente a garantirne una corretta equilibratura. Diventa necessario pertanto controllare direttamente sul prodotto finito il valore di vibrazione presente analizzando il grado di equilibratura del ventilatore a differenti regimi di lavoro della girante.

Infatti a parità di valori di squilibrio, l'effetto della vibrazione è direttamente proporzionale al numero di giri a cui la girante si trova a lavorare.

Per tutte queste ragioni diventa fondamentale porre sotto controllo a mezzo di analisi di “capability” i

valori di squilibrio misurati durante il collaudo finale del ventilatore. Tale analisi risulta affidabile e veritiera se il metodo di misura utilizzato è stato accuratamente studiato e tarato nonché correttamente implementato e validato a mezzo tecnica MSA. Implementando tale metodo di controllo è possibile garantire il soddisfacimento del valore di squilibrio massimo ammissibile per ogni gamma di prodotto. Oltre alla sopradescritta tipologia di controllo quando necessario è possibile implementare in linea anche una equilibratura al 100% del sistema girante/ventilatore. L'equilibratura in linea è un procedimento alquanto costoso in termini di durata del ciclo di lavoro, ma oltre che garantire un elevato grado di qualità al prodotto in termini di vibrazioni, consente inoltre la riduzione delle difettosità riscontrabili solo al collaudo finale del prodotto.

Obiettivo: la qualità del prodotto finito

Il livello di qualità complessivo del prodotto finito, dunque, dipende da svariati aspetti, tutti correlati tra loro; esso scaturisce già dalle soluzioni costruttive intraprese nelle prime fasi progettuali, si concretizza con la scelta accurata dei parametri critici da tenere sempre sotto controllo e si consolida a mezzo di validazioni dei vari sistemi di misura utilizzati tramite tecnica MSA. Tutti questi aspetti in ottica di una produzione orientata alla logica del Lean Management, diventano un focus totalizzante dell'azienda stessa, dimostrando come l'approccio APQP (Advanced Product Quality Planning), seppur applicato in maniera “snella”, riesce a garantire livelli di qualità sul prodotto finito che l'attuale mercato delle cappe aspiranti al momento richiede.

OLIVIA RABBI

SAFETY AND EFFICIENCY

The new range of saving solutions by Satiplugs improves the protection performances of household appliances' electric connection and provides advantages in the optimization of the manufacturing and product management process

Since 1972, Satiplugs has been specialized in the moulding of electric cables with plug for the industrial sector,

intended for all various product sectors that include big and small appliances, cleaning equipment and automated vending machines.

The company's mission is the moulding of products with different sections and in various typologies, in conformity with the certifications demanded by the European and international market.

All manufacturing phases undergo complete in-house tests guaranteed by ISO 9001:2008, IQNET and CSQ quality system. Through a production process that exploits the performances of automated machines, Satiplugs implements its products according to technical specifications directly provided by customers.

High connection safety and outstanding manufacturing efficiency is the pair characterizing the range of saving solutions, which include electromechanical components able to improve the safety performances of the electric connection and offer consistent managerial and productive optimization to the manufacturers of finished appliances.

The virtuous saving process resides, for instance, in the simplification of the production cycle as well as in the efficiency enhancement of the after sale service, of the management of warehouse and logistics, implementing Satiplugs service of support and partnership with customers.



SICUREZZA ED EFFICIENZA

La nuova gamma di soluzioni saving di Satiplugs migliora le prestazioni di protezione della connessione elettrica dell'elettrodomestico e apporta vantaggi nell'ottimizzazione del processo produttivo e di gestione dei prodotti.

Dal 1972, Satiplugs è specializzata nello stampaggio di cavi elettrici con spina pressofusa per il settore industriale, rivolte a tutti i diversi settori merceologici tra cui piccoli e grandi elettrodomestici, apparecchiature per il cleaning e distributori automatici.

L'azienda presta particolare attenzione allo stampaggio dei prodotti in varie sezioni e tipologie, in conformità con le certificazioni richieste dal mercato europeo e internazionale. Tutte le fasi di produzione sono sottoposte a completi controlli interni garantiti dal sistema qualità ISO

9001:2008, IQNET e CSQ. Grazie a un processo produttivo che sfrutta le performance di macchine automatiche, Satiplugs realizza i propri prodotti sulla base di specifiche tecniche fornite direttamente dalla clientela. Elevata sicurezza di connessione e alta efficienza produttiva è il binomio caratterizzante la gamma di soluzioni saving, che comprende componenti elettromeccanici in grado di migliorare le prestazioni di sicurezza alla connessione elettrica e offre una consistente ottimizzazione gestionale e produttiva alle aziende produttrici di apparecchi finiti. Il processo virtuoso di saving si colloca, per esempio, nella semplificazione del ciclo produttivo, così come nell'efficientamento del servizio post vendita, della gestione del magazzino e della logistica, implementando il servizio Satiplugs di affiancamento e partnership con il cliente.

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SPECIAL FILTERS FOR THE DOWNDRAFT HOOD

The new kitchen hoods, integrated into the hob, need specific solutions in terms of style and used material. The filter is increasingly protagonist in assuring the aesthetical impact of the appliance and high performances

The suction evolution in recent years has culminated in the introduction of downdraft hoods, integrated into the hob, which have subverted the system of neutralizing the steam generated in kitchens: instead of being traditionally captured from the bottom to the top, now it is sucked from the top to the bottom. By Sifim, this notable innovation has led to review the shape and the composition of the filter, boosting the design of state-of-the-art products suiting this new operational modality. The latest guidelines for the manufacturing of suitable filters for the different styles of downdraft hoods concern the motor specifications, the hood

volume, the provenience of the steam flow, the shape of the extractor, the air output and energy regulations. All these variables influence the choice of the design, characterized by unusual and daring lines in terms of feasibility, and the choice of traditional and innovative materials such as

aluminium, steel, plastic and noise absorbers, combined in a mutual symbiosis to assure a unique winning product. For these reasons, each filter is fully different in shape and structure from the others, but as performing, since conceived and tested exclusively to be part of a specific downdraft hood. These technical evolutions make the filter be more and more integral part of the hood, improving its performances and efficiency.



FILTRI SPECIALI PER LA CAPPA DOWNDRAFT

Le nuove cappe da cucina, integrate al piano cottura, richiedono soluzioni ad hoc per stile e materiale utilizzato. E il filtro è sempre più protagonista nel garantire impatto estetico dell'apparecchio e alte prestazioni. L'evoluzione dell'aspirazione negli ultimi anni è culminata nell'introduzione delle cappe downdraft, incorporate al piano cottura, che hanno sovvertito il sistema di neutralizzare il vapore generato in cucina: invece di essere catturato tradizionalmente dal basso verso l'alto, ora viene aspirato dall'alto verso il basso. In casa Sifim, questa grande innovazione ha portato a riconsiderare la fattezze e la composizione del filtro, stimolando la progettazione di prodotti di ultima generazione adatti a questo nuovo modo di operare. Le ultime linee guida per la realizzazione di filtri idonei ai diversi stili delle cappe

downdraft riguardano le caratteristiche del motore, il volume della cappa, la provenienza del flusso dei vapori, la conformazione dell'estrattore, l'uscita dell'aria e le normative energetiche. Tutte queste variabili influiscono sulla scelta del design, caratterizzato da linee insolite e audaci dal punto di vista realizzativo, e sulla scelta di materiali tradizionali e innovativi quali alluminio, acciaio, plastica e assorbitori di odori, combinati in simbiosi tra loro per garantire un prodotto unico e vincente. Per questi motivi, ogni filtro è nettamente diverso nella forma e nella struttura dagli altri ma ugualmente performante in quanto nato e testato esclusivamente per essere parte di una specifica cappa downdraft. Grazie a queste evoluzioni tecniche, il filtro è quindi sempre più parte integrante della cappa, migliorandone le prestazioni e l'efficienza.



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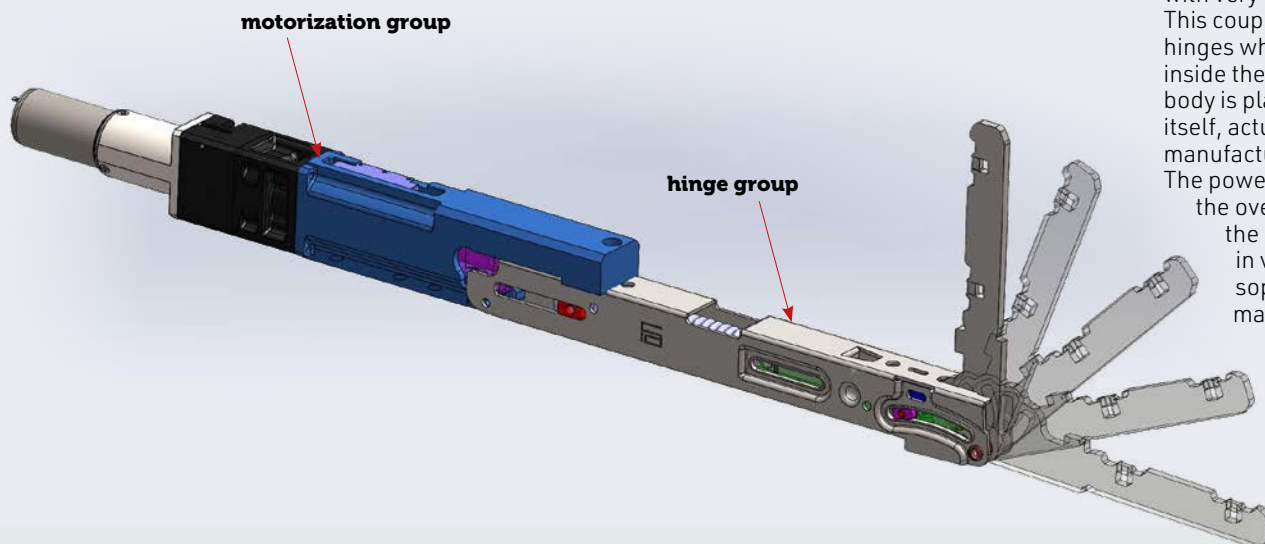
SABRINA PIACENZA

OPENING THE OVEN WITH ONE TOUCH, ONE WORD, ONE GESTURE

The hinges for the doors of gas or electric ovens are not visible but they unceasingly work for us and have notably evolved in recent years, initially with dampened closing and opening systems (Soft Closing and Soft Opening), due to the work of Faringosi Hinges, which in 2007 released, first company, this solution on the market

THE TURNING POINT OF AUTOMATION

At present Faringosi Hinges, constantly researching utmost innovation, patents and proposes - first company - a fully automated opening and closing system of the oven to the market. The system, in very trivial words, is based on the coupling of the hinge automation with an electric motor with very low consumption. This coupling is possible for both the hinges whose main body is positioned inside the door and for those whose body is placed inside the oven itself, actually allowing whatever manufacturer to adopt this solution. The powered system connected with the oven control interface permits the door opening and closing in various ways, increasingly sophisticated, according to the manufacturer's preferences, through controls "physical" or "touch" on the oven front panel, gestural, vocal, Bluetooth or Wi-Fi.



APRIRE IL FORNO CON UN TOCCO, UNA PAROLA, UN GESTO

La svolta dell'automazione

Oggi Faringosi Hinges, sempre alla ricerca della massima innovazione, brevetta e propone per prima al mercato un sistema di apertura e chiusura forno completamente automatizzato. Il sistema, detta in modo molto banale, si basa sull'accoppiamento sull'asservimento delle cerniere a un motore elettrico a bassissimo consumo. Questo accoppiamento è possibile tanto per le cerniere il cui corpo principale è posizionato all'interno della porta che per quelle il cui corpo è posizionato dentro il forno stesso, consentendo di fatto a qualsiasi produttore di adottare questa soluzione. Grazie al sistema motorizzato collegato all'interfaccia comandi del forno è possibile operare l'apertura e la chiusura della porta in vari modi, via via più sofisticati, in base alle preferenze del costruttore, attraverso comandi "fisici" o "touch" presenti sul frontalino del forno, gestuali, vocali, Bluetooth o Wi-Fi

Spazio alla manualità

Anche se questa applicazione ha la sua ragion d'essere nell'abbandono della necessità di interazione diretta tra l'utente e il forno è comunque possibile prevedere la presenza di tasti fisici o aree touch sul frontalino del forno tramite i quali è possibile attivare la chiusura e l'apertura della porta. Un'ulteriore possibilità è quella dei comandi gestuali. Grazie a dei sensori posti sulla facciata del forno e collegati con il sistema di controllo è possibile gestire apertura e chiusura grazie a dei gesti predeterminati. Per fare questo è però necessario essere in prossimità del forno stesso.

Libertà d'azione

Più al passo con i tempi la possibilità di connettere il forno con assistenti vocali come Amazon Alexa, Apple Home Pod ecc.. Grazie a questi device è possibile

ROOM TO MANUAL SKILLS

Even if this application has its reason for being in giving up the need of direct interaction between user and oven, it is anyway possible to provide for the presence of physical keys or touch areas on the oven front panel, enabling the door closing and opening. A further possibility consists in gestural controls.

Some sensors positioned on the oven front side and connected with the control system allow managing the opening and closing through predetermined gestures. This requires, however, the proximity to the oven itself.

FREEDOM OF ACTION

The possibility of connecting the oven with vocal assistants like Amazon Alexa, Apple Home Pod etc. better keeps pace with times.

These devices allow controlling the door opening and closing with simple vocal controls, meanwhile letting us the freedom of moving in the kitchen or in other domestic environments.

Moreover, it is possible to control the oven through a dedicated application (via Bluetooth or Wi-Fi) with

which we can act while sitting in the living room or in another room.

Since the system is managed by an electronic unit, all parameters concerning the opening and closing features can be customized according to the manufacturer's demands, like the initial opening speed and the final closing speed, the intermediate speed, eventual stops on intermediate positions and so on.

In the system ideated and

patented by Faringosi Hinges, the presence of hinges with all their functions and characteristics remains essential.

One of its peculiarities is just the possibility of opening and closing the oven both automatically and manually.

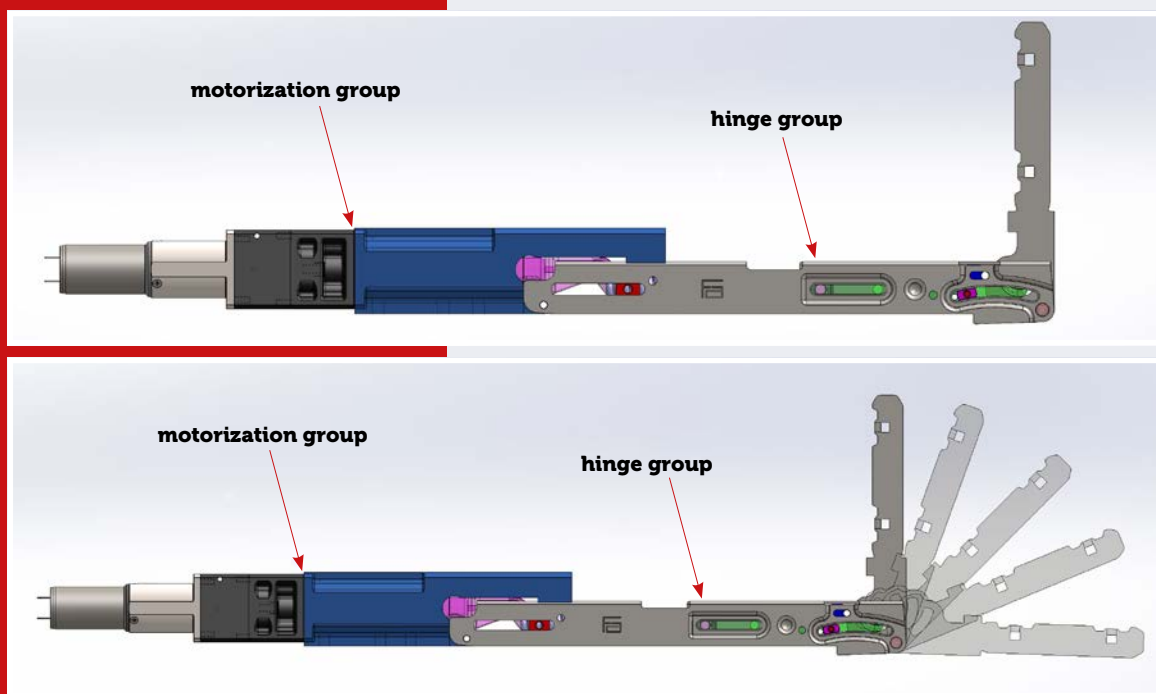
This permits, in case of voltage absence in the network or anyway according to the user's choice, to open or to close the oven without turning to the motor. Therefore, in these cases the door opening and closing will be managed by hinges, which will be opportunely defined to balance the oven door correctly.

Obviously, the strictest compliance with safety standards avoids any kind of trouble.

From the detection of an obstacle, such as the user's hand, which instantaneously stops the door to prevent accidental crushing, to the automatic release of the powered system in case of manual opening/closing, to avoid damages to internal mechanisms.

Moreover, the remote connection via Wi-Fi with the control unit is possible.

This allows the manufacturer to provide users with assistance in case of need or to collect information about the product use modalities.



comandare apertura e chiusura della porta con semplici comandi vocali, lasciandoci liberi nel frattempo di muoverci in cucina o in altri ambienti della casa. Inoltre c'è la possibilità di comandare il forno tramite una applicazione dedicata (via Bluetooth o Wi-Fi) con la quale possiamo agire anche mentre siamo seduti in soggiorno o in un'altra stanza.

Essendo il sistema gestito da una centralina elettronica, tutti i parametri inerenti alle caratteristiche di apertura e chiusura sono personalizzabili in base alle richieste del produttore come la velocità iniziale di apertura e finale chiusura, la velocità intermedia, eventuali stop su posizioni intermedie ecc.

Nel sistema ideato e brevettato dalla Faringosi Hinges, la presenza delle cerniere, con tutte le loro funzionalità e caratteristiche, resta essenziale. Una delle sue peculiarità è proprio la possibilità di aprire e chiudere il forno sia in modo automatico che in modo manuale.

Questo permette, in caso di assenza di tensione in rete o comunque a scelta dell'utente, di aprire o chiudere il forno senza ricorrere alla motorizzazione.

L'apertura e la chiusura della porta saranno quindi gestite, in questi casi, dalle cerniere che saranno opportunamente definite per bilanciare correttamente la porta del forno. Ovviamente sono massimi gli standard di sicurezza seguiti per evitare qualsiasi tipo di inconveniente. Dal riconoscimento di un ostacolo, come potrebbe essere la mano dell'utente, che blocca istantaneamente la porta in modo da evitare schiacciamenti accidentali, allo sgancio automatico del sistema motorizzato, in caso di apertura /chiusura manuale, in modo da evitare danni ai meccanismi interni.

È inoltre possibile la connessione da remoto via Wi-Fi alla centralina di controllo. Questo permette al produttore di dare assistenza all'utente in caso di bisogno o di raccogliere informazioni sulle modalità di utilizzo del prodotto.

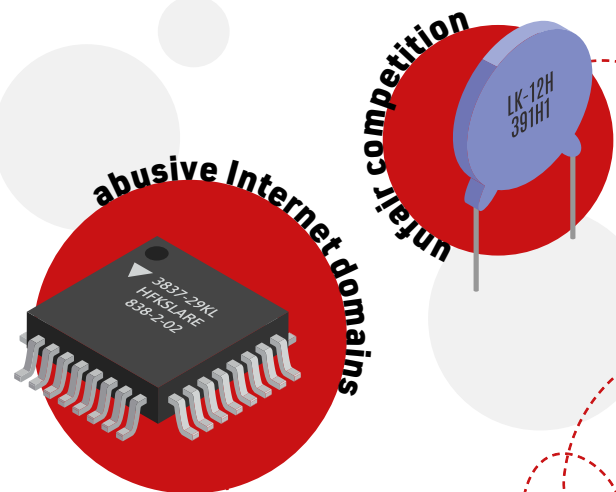
The problem of online counterfeiting **AND A POSSIBLE SOLUTION**

The volume of counterfeited goods sold online is estimated in over 500 billion dollars a year and one product out of 7 sold online is counterfeited. It is an alarming phenomenon constantly rising. And AI can help to fight it

W

e all know Internet on one hand constitutes a great opportunity to develop one's own business but, on the other hand, an as relevant menace that jeopardizes companies' competitive edges. The same web features that favour the legitimate trade are finally precious for the counterfeiting chain, too. According

to a study by Indicam, in particular, the most responsible characteristics for its distorted use are the offer anonymity or the simple authenticity simulation, the possibility of choosing among a very broad typology of virtual stores, the transaction security, in both economic and distributive-logis-



tic terms; in fact, the meshes of the net are generally large enough to allow the passage of the small shipments that concern final consumers.

Online counterfeiting numbers in the world are relevant and constantly rising. The volume of counterfeited goods sold in the world is estimated in over 500 billion dollars a year; the counterfeited goods sold online in the world are equal to 1 product every 7 genuine products; the damag-

es caused by digital piracy in the world are estimated in over 85 billion dollars yearly. The products most counterfeited through Internet include electronic products, telecommunication devices, and their spare parts.

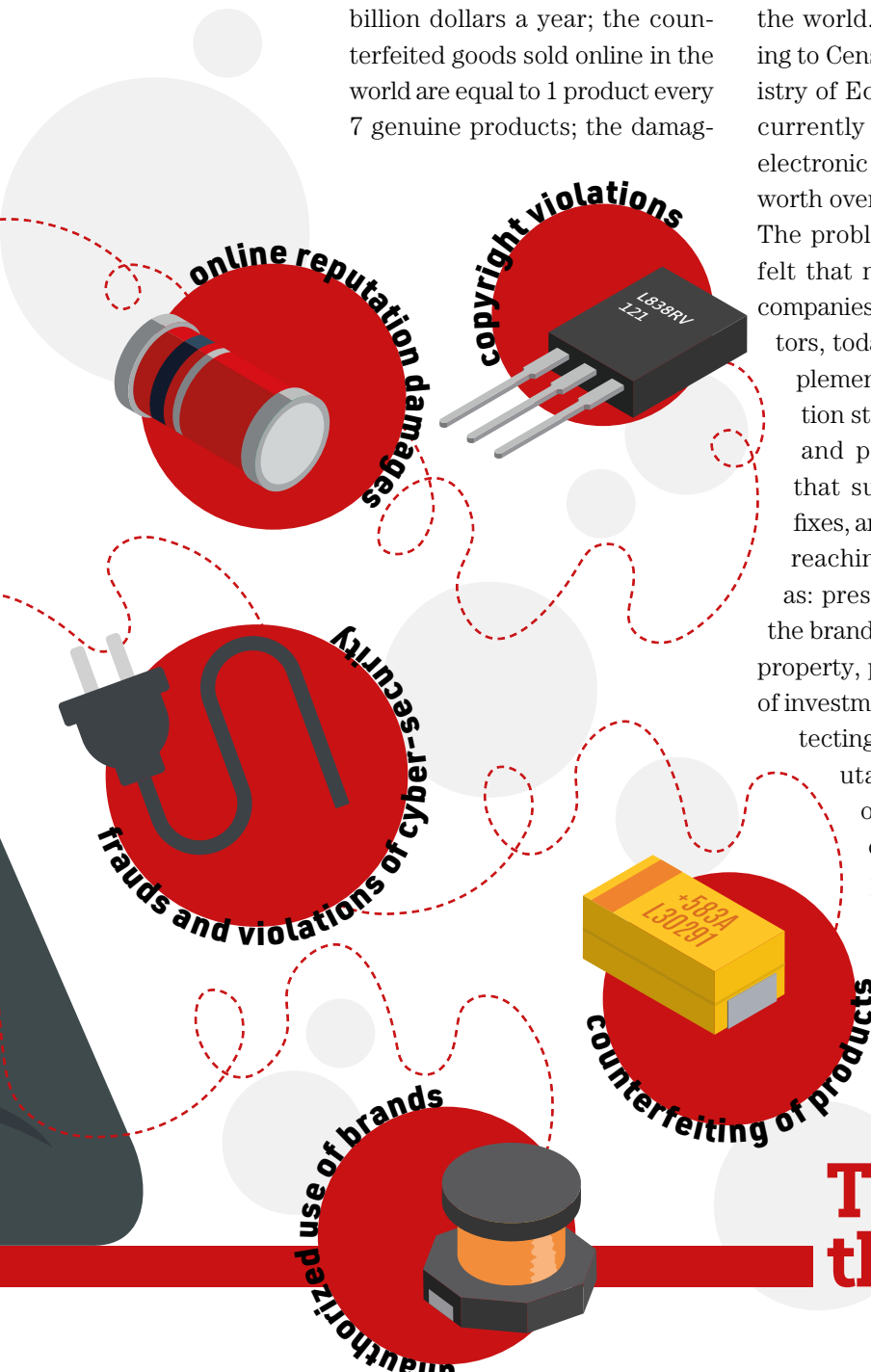
The counterfeiting of electronic products constitutes over 25% of overall counterfeited products in the world. Just in Italy, according to Censis reports for the Ministry of Economic Development, currently the counterfeiting of electronic products has a market worth over 1.5 billion Euros.

The problem is so relevant and felt that more than 98% of big companies in the world, in all sectors, today feel the need of implementing an online protection strategy for their brands and products. The targets that such online protection fixes, and in many cases allows reaching, are manifold, such as: preserving the integrity of the brand and of the intellectual property, preserving the efficacy of investments in marketing, protecting the online brand reputation, reducing turnover losses caused by online counterfeiting, protecting consumers' confidence, avoiding the unfair diversion of customers.

However, in what do online protection strategies consist? If,

on one hand, new information technologies allow counterfeiters to sell more and more easily through the web, on the other hand such technologies, and especially software based on artificial intelligence, permit to monitor the web and to identify automatically each abuse, product counterfeiting included.

Therefore, in recent years, companies specialized in offering online anti-counterfeiting services have been established and they basically operate with the following methodology: detection of infringements on the web; analysis and cataloguing of information; problem-solving, through an automatic reporting of validated abuses to eliminate or to minimize illicit activities, according to the laws in force. It is clear that the identification, but especially the removal of the abuse, need the presence of a team who, besides IT experts, can rely on the support of consultants in industrial property protection and in international law in Internet. In particular, it is first worth specifying that, to consider illicit an unauthorized online sale activity and then to remove it efficaciously, it is necessary there is an infringement of intellectual property rights to the detriment of the company that intends to contrast the online counterfeiting. Therefore, at the base of the repression strategy of the illicit activity, there should be a



The illicit activities that exploit the web

protection strategy of the company's immaterial assets, essentially based on registered industrial property rights.

Let us remind that such rights consist in: registered trademarks, which protect the distinguishing features of the company, or products and services; patents of industrial invention or by utility model, which protect technical aspects of a product or proceeding; registered designs or models, which protect the aesthetical aspect of a product or of one of its parts, user graphic interfaces included. In addition to these registered industrial property rights, there are other intellectual property rights that do not necessarily need a registration and can be anyway used as legal base to remove an infringement identified on the web.

Such unregistered rights are the following: copyright, which protects the intellectual property, software included; industrial secrets, or know-how; unregistered designs or models, which are anyway protected in the European Union for a period of three years

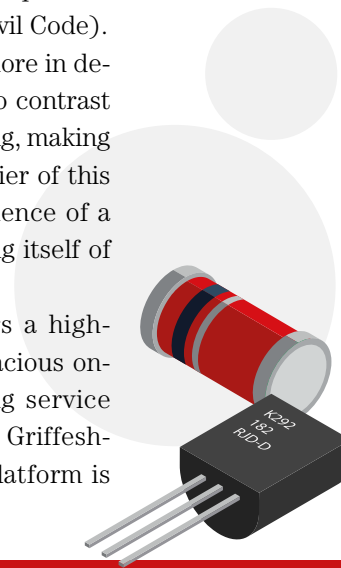
since their first divulgation; unregistered distinguishing features (trademarks, domain names and so on but only if they have gained ultra-local notoriety).

Finally, online sale activities can be considered illicit if they belong to unfair competition acts, in other words, in particular, if those executing them, "use names or distinguishing features apt for generating confusion with the names or distinguishing features lawfully used by others, or slavishly imitate the products by a competitor, or perform, with any other means, acts capable of creating confusion with the products and the activity of a competitor" (Art.2958, c.1 of the Civil Code). Given that, let us see more in detail how it is possible to contrast the online counterfeiting, making the example of a supplier of this service and the experience of a company that is availing itself of that.

A company that offers a highly innovative and efficacious online anti-counterfeiting service is the Italian company Griffeshield srl. Its software platform is

based on an artificial intelligence engine that uses various proprietary technologies such as the image comparison and the semantic analysis to identify abusive contents and counterfeited products in the billions of Internet pages present worldwide and in all web channels like Internet sites, marketplaces, social networks and APPs.

The system speed is guaranteed by Ishtar II supercomputer in which the platform runs. If the traditional procedure of online counterfeiting contrast implies the involvement of a law firm - sometimes also in collaboration with a foreign law firm headquartered in the Country where the counterfeiter is supposed to reside, which examines any single illicit act and then draws up and sends a letter of formal notice, often addressing more subjects of the counterfeiting chain, with costs amounting to even several thousand Euros -, by using the IT/legal platform by Griffeshield the abuse removal is automatically executed through the artificial intelligence engine.



ANTI-COUNTERFEITING ACTIONS

Abusive internet domain monitoring. Internet domains whose names contain company's trademarks or names of products, both precise and similar, are searched and monitored. The domain search occurs in all active world extensions. The search includes also the domains registered with IDN characters, that is to say in the foreign languages enabled to registration for each extension.

Monitoring of abusive brand use in Internet. The unauthorized use on Internet of the company's brand is searched, identifying similar brands, too. The control is both textual and graphic. The search ambit can include: open web, social networks, blogs and forums, e-commerce portals, mobile applications, P2P networks, dark web.

Monitoring of unfair competition in Internet. It is searched the use in unfair competition on Internet of the brand name, of best-selling products, of key writings and words of company's property. The verification in

Internet pages is textual on the plain text, on the code, and on keywords.

Monitoring of counterfeiting in Internet. They are searched in Internet the products on sale suspected of counterfeiting as they include designs /models/patents regarding the company's original products. The check is both textual and graphic in Internet pages. Comparison data are based on information concerning designs/models/patents and product features preliminarily provided by the company, as well as associative search algorithms with GriffShield proprietary technology.

Monitoring of copyright infringement in Internet. They are searched in Internet the elements suspected of copyright infringement versus the works of an author indicated by the company. The verification is textual, graphic, audio, video, and software applicative. Comparison data are based on the information preliminarily provided by the company, as well as associative search algorithms.

The engine searches for contact details of all involved subjects (owners, providers, platforms and legal teams) for any infringement and it processes a reporting protocol in language, including the required Intellectual Property titles, the infringement proof, technical data, the abuse description, violated laws and the specific know-how concerning the case. Moreover, it sends reports to search engines, Internet control organizations, police on Internet and credit card systems. Depending on the reporting result, the system proceeds with different techniques to maximise results. If, for instance, a Website removed from the system is then displaced (it changes provider), the platform automatically follows it and will remove it again.

Otherwise, if an Internet provider does not collaborate, techniques (even at higher net levels) are used to demonstrate the bad faith and to undertake actions.

Due to such automated system, the cost for each removal amounts to few Euros!

Moreover, the company can entrust the service supplier with almost the whole online protection activity and focus its resources on the management of high-level problems.

The software platform allows tracing and controlling monitoring/analysis/removal processes of Internet abuses in simplified manner, also by figures in the company without specific IT/legal skills. The most counterfeited electronic products certainly include telephony and IT, household appliances,

remote controls, domotics devices and many others.

One of the biggest reality in the world in the sector of home automation, home security and smart home, Nice multinational company, is using the Griffeshield solution with high satisfaction to contrast the phenomenon of the online counterfeiting of its products, especially of transmitters to control automations.

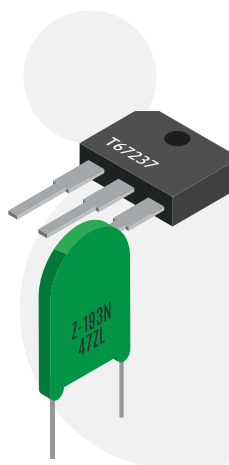
The geographical distribution of menaces concerns almost the

entire world and not only China, which anyway remains the provenience Country of the vast majority of counterfeiting. When the product counterfeiter uses the corporate registered brand, in fact, the marketplace manager generally closes the web page immediately, as soon as he receives the report from Griffeshield. However, counterfeiters use also more sophisticated strategies. They propose, for instance, similar products, or even identical to the original, but without the company's brand or with a different brand. In these cases, the possibility of using the legal instrument of the registered design, to make the abusive web page be removed quickly, is highly advantageous. For example, a web page of Alibaba marketplace proposed a transmitter equal to the original but without the manufacturer's logo. In this case, it was possible to identify the counterfeiting through the image comparison algorithm of the platform, which succeeds in detecting identical or similar objects through their design, surpassing the limits of the search by keywords that is typical of search engines and of electronic trade platforms.

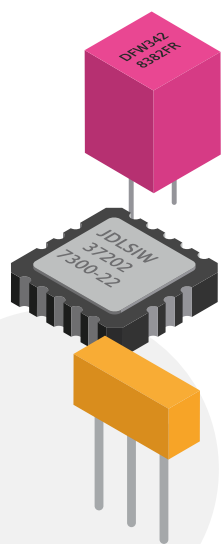
The image comparison algorithm is based on geometrical comparisons among vectorized product images and comparisons of their textures. An already recognized image vector helps then the system in improving the counterfeited item detection.

Once detected the counterfeiting, thanks to the exclusive right provided by the transmitter design registration it was possible to close the web pages immediately. In the first 6 months of service, the online product counterfeiting was reduced by 68% on a global scale, with a market equivalent of some million Euros/year. 3,100 web pages were closed. Worth noticing that Griffeshield platform allows identifying not only counterfeited goods but also unauthorized sales of original products.

The companies that have equipped themselves with anti-counterfeiting services, like Griffeshield one, have an undoubted advantage on the market because the protection in Internet they obtain indirectly determines a recovery of turnover and image towards customers and end users, besides efficaciously exploiting their own industrial and intellectual property rights.



The most counterfeited electronic products certainly include telephony and IT, household appliances, remote controls and domotics devices



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UNA POSSIBILE RISPOSTA ALLA CONTRAFFAZIONE ONLINE

Il volume delle merci contraffatte vendute online è stimato in oltre 500 miliardi di dollari all'anno e un prodotto ogni 7 venduti online è contraffatto. Si tratta di un fenomeno allarmante e in continua crescita. Che può essere combattuto con l'intelligenza artificiale. È a tutti noto come Internet costituisca, da un lato, una grande opportunità per sviluppare il proprio business, ma, dall'altro, un altrettanto grande minaccia che mette a repentaglio i vantaggi competitivi delle aziende. Infatti, gli stessi tratti del web che favoriscono il commercio legittimo finiscono per essere preziosi anche alla filiera della contraffazione. In particolare, secondo uno studio Indicam, i tratti maggiormente responsabili del suo uso distorto sono l'anonimità dell'offerta o la facilità di simularne l'autenticità, la possibilità di scegliere tra un'ampissima tipologia di punti vendita virtuali, la sicurezza delle transazioni sia sul lato economico, sia su quello distributivo - logistico; infatti le maglie della rete sono, di solito, sufficientemente larghe da lasciar passare le piccole spedizioni che interessano i consumatori finali. I numeri della contraffazione online nel mondo

sono notevoli e in continua crescita. Il volume delle merci contraffatte vendute nel mondo è stimato in oltre 500 miliardi di dollari all'anno; la merce contraffatta venduta online nel mondo è pari a 1 prodotto ogni 7 prodotti genuini; i danni dovuti alla pirateria digitale nel mondo sono stimati in oltre 85 miliardi di dollari annuali. Tra i prodotti maggiormente contraffatti attraverso Internet figurano i prodotti elettronici, dispositivi di telecomunicazioni, e loro pezzi di ricambio. La contraffazione di prodotti elettronici rappresenta oltre il 25% del totale dei prodotti contraffatti nel mondo. Soltanto in Italia, secondo i rapporti del Censis per il Ministero dello Sviluppo Economico, ad oggi la contraffazione di prodotti elettronici ha un mercato che vale oltre 1,5 miliardi di euro. Il problema è talmente importante e sentito che oltre il 98% delle grandi aziende nel mondo, in tutti i settori, sente oggi la necessità di implementare una strategia di protezione online per i propri marchi e prodotti. Gli obiettivi che tale strategia di protezione online si prefigge e, in molti casi, permette di raggiungere, sono molteplici, tra cui

preservare l'integrità del marchio e della proprietà intellettuale, preservare l'efficacia degli investimenti nel marketing, tutelare la reputazione online del marchio, ridurre le perdite di fatturato dovute alla contraffazione online, tutelare la fiducia del consumatore, evitare lo sviamento sleale della clientela. Ma in che cosa consistono le strategie di protezione online? Se, da una parte, le nuove tecnologie informatiche permettono ai contraffattori di vendere sempre più facilmente attraverso il web, dall'altra tali tecnologie, ed in particolare i software basati sull'intelligenza artificiale, consentono di monitorare il web e di individuare automaticamente ogni abuso, inclusa la contraffazione di prodotti. Negli ultimi anni sono nate quindi società specializzate nell'offrire servizi di anti-contraffazione online che, in sostanza, operano con la seguente metodologia: rilevazione delle infrazioni nel web; analisi e catalogazione delle informazioni; risoluzione delle problematiche, attraverso una segnalazione automatica degli abusi convalidati per eliminare o minimizzare le attività illecite, secondo le leggi in vigore. È chiaro che l'individuazione, ma soprattutto la rimozione dell'abuso, richiedono la presenza di un team che, oltre agli esperti informatici, possa contare sul supporto di consulenti in tutela delle proprietà industriali e in diritto internazionale sulla rete Internet. In particolare, è innanzitutto bene precisare che, affinché un'attività di vendita online non autorizzata venga considerata illecita e possa poi essere efficacemente rimossa, è necessario che vi sia una violazione di diritti di proprietà intellettuale in capo all'azienda che vuole contrastare la contraffazione online. Alla base della strategia di repressione dell'attività illecita dovrebbe quindi esserci una strategia di tutela degli asset immateriali dell'azienda, che si poggia in primo luogo su diritti di proprietà industriale registrati. Ricordiamo che tali diritti consistono in: marchi registrati, che tutelano i segni distintivi dell'azienda o dei prodotti o servizi dell'azienda; brevetti di invenzione industriale o per modello

COME IMPLEMENTARE LE AZIONI ANTICONTRAFFAZIONE

Monitoraggio domini internet abusivi. Vengono ricercati e monitorati i domini Internet il cui nome contiene marchi o nomi di prodotti dell'azienda, sia esatti che simili. La ricerca dei domini avviene in tutte le estensioni mondiali attive. La ricerca comprende anche i domini registrati con caratteri IDN ovvero nelle lingue straniere abilitate alla registrazione per ciascuna estensione.

Monitoraggio uso marchio abusivo su Internet. Viene ricercato l'utilizzo non autorizzato su Internet del marchio dell'azienda, individuando anche marchi simili. La verifica è sia testuale che grafica. L'ambito della ricerca può comprendere: open web, social networks, blogs e forums, portali e-commerce, applicazioni mobile, P2P networks, dark web.

Monitoraggio della concorrenza sleale su Internet. Viene ricercato l'utilizzo in concorrenza sleale su Internet del nome del marchio, dei prodotti più venduti, o di diciture e parole chiave di proprietà dell'azienda. La verifica nelle pagine Internet è testuale sul testo in chiaro, sul codice, e sulle keywords.

Monitoraggio della contraffazione su Internet. Vengono ricercati su Internet i prodotti in vendita sospettati di contraffazione perché comprendenti disegni/modelli/brevetti relativi ai prodotti originali dell'azienda. La verifica è sia testuale che grafica nelle pagine Internet. I dati di confronto si basano su informazioni relative a disegni/modelli/brevetti e a caratteristiche dei prodotti, fornite in via preliminare dall'azienda, nonché su algoritmi di ricerca associativa con tecnologia proprietaria di GriffeShield.

Monitoraggio violazioni del copyright su Internet. Vengono ricercati su Internet gli elementi sospettati di violazione del copyright rispetto alle opere di un autore indicate dall'azienda. La verifica è testuale, grafica, audio, video, e applicativa software. I dati di confronto si basano sulle informazioni fornite in via preliminare dall'azienda, nonché su algoritmi di ricerca associativa.

di utilità, che proteggono aspetti tecnici di un prodotto o procedimento; disegni o modelli registrati, che tutelano l'aspetto estetico di un prodotto o di una sua parte, comprese le interfacce grafiche utente.

Accanto a queste privative industriali registrate, vi sono altri diritti di proprietà intellettuale che non richiedono necessariamente una registrazione e che possono comunque essere utilizzati come base legale per rimuovere un abuso individuato sul web.

Tali diritti non registrati sono: il diritto d'autore, o copyright, che tutela le opere dell'ingegno, inclusi i software; i segreti industriali, o know-how; i disegni o modelli non registrati, che risultano comunque protetti nell'Unione Europea per un periodo di tre anni dalla loro prima divulgazione; segni distintivi non registrati (marchi, nomi a dominio, ecc., ma solo se hanno acquisito notorietà ultralocale). Infine, attività di vendita online possono essere considerate illecite se rientrano negli atti di concorrenza sleale, ovvero, in particolare, se chi li compie "usa nomi o segni distintivi idonei a produrre confusione con i nomi o con i segni distintivi legittimamente usati da altri, o imita servilmente i prodotti di un concorrente, o compie con qualsiasi altro mezzo atti idonei a creare confusione con i prodotti e con l'attività di un concorrente" (Art.2958, c.1 del Codice Civile). Ciò premesso, vediamo più in dettaglio come si può contrastare la contraffazione online, portando l'esempio di un fornitore di questo servizio e l'esperienza di un'azienda che se ne sta avvalendo.

Una società che offre un servizio di anti-contraffazione online particolarmente innovativo ed efficace è la società italiana Griffeshield srl. La sua piattaforma software si basa su un motore di intelligenza artificiale che utilizza diverse tecnologie proprietarie come il confronto immagini e l'analisi semantica per individuare i contenuti abusivi e i prodotti contraffatti nelle miliardi di pagine Internet presenti in tutto il mondo e in tutti i canali web come siti Internet, marketplaces, social networks e APP. La velocità del sistema è garantita dal supercomputer Ishtar II su cui gira la piattaforma.

Se la procedura tradizionale di contrasto della contraffazione online comporta il coinvolgimento di uno studio legale, a volte anche in collaborazione con uno studio legale estero domiciliato nel Paese dove si ritiene risieda il

contraffattore, che esamina ogni singolo atto illecito e quindi prepara ed invia una lettera di diffida, spesso diretta a più soggetti della catena di contraffazione, con costi anche di diverse migliaia di euro, utilizzando la piattaforma informatico/legale di Griffeshield la rimozione degli abusi viene eseguita automaticamente tramite il motore di intelligenza artificiale.

Per ogni abuso il motore cerca i dettagli di contatto di tutti i soggetti coinvolti (proprietari, providers, piattaforme, team legali) ed elabora un protocollo di reporting in lingua, includendo i titoli di Proprietà Intellettuale richiesti, la prova degli abusi, i dati tecnici, la descrizione degli abusi, le leggi violate, e il know how specifico relativo al caso.

Invia inoltre segnalazioni a motori di ricerca, organizzazioni di controllo di Internet, polizia su Internet, sistemi di carte di credito.

A seconda del risultato della segnalazione, il sistema procede con tecniche diverse per massimizzare i risultati.

Ad esempio, se un sito Web rimosso dal sistema viene poi spostato (cambia provider), la piattaforma lo segue automaticamente e lo rimuoverà di nuovo.

O se un provider Internet non collabora, si utilizzano tecniche (anche a livelli più alti nella rete) per dimostrare la malafede e intraprendere azioni.

Grazie a tale sistema automatizzato, il costo per ogni rimozione è di pochi euro. Inoltre l'azienda può delegare al fornitore del servizio quasi tutta l'attività di protezione online e concentrare le proprie risorse sulla gestione dei problemi ad alto livello. La piattaforma software permette di seguire e controllare i processi di monitoraggio/analisi/rimozione degli abusi Internet in modo semplificato anche da figure in azienda che non hanno specifiche competenze informatiche o legali.

Tra i prodotti elettronici più copiati ci sono certamente quelli della telefonia e dell'informatica, elettrodomestici, telecomandi, apparecchi per la domotica, e molti altri.

Una delle più grandi realtà al mondo nel settore dell'home automation, home security e smart home, l'azienda multinazionale Nice, sta utilizzando la soluzione Griffeshield con grande soddisfazione per contrastare il fenomeno della contraffazione online dei suoi prodotti, in particolare dei trasmettitori per controllare le automazioni.

La distribuzione geografica delle minacce

riguarda quasi tutto il mondo e non solo la Cina, che comunque rimane il Paese di provenienza della maggior parte della contraffazione.

Quando il contraffattore del prodotto utilizza il marchio registrato dell'azienda, il gestore del marketplace solitamente chiude immediatamente la pagina web non appena riceve la segnalazione da Griffeshield.

Tuttavia, i contraffattori utilizzano anche strategie più sofisticate.

Ad esempio, propongono prodotti simili o anche identici all'originale, ma senza marchio dell'azienda o con un brand diverso. In questi casi è molto vantaggioso poter utilizzare lo strumento legale del disegno registrato per far rimuovere in modo rapido la pagina web abusiva. Per esempio in una pagina web del marketplace Alibaba veniva venduto un trasmettitore uguale all'originale, ma senza il logo dell'azienda produttrice.

In questo caso, è stato possibile individuare la contraffazione grazie all'algoritmo di confronto immagini della piattaforma, che riesce a rilevare oggetti identici o simili attraverso il loro design, sorpassando i limiti della ricerca per keywords tipica dei motori di ricerca e delle piattaforme di commercio elettronico.

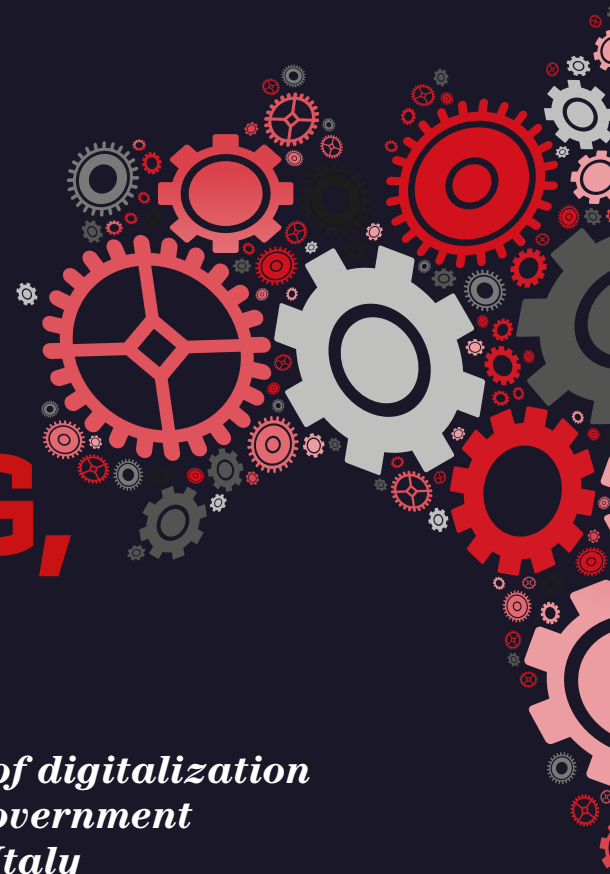
L'algoritmo di confronto immagini si basa su confronti geometrici tra immagini di prodotti vettorializzate e confronti sulle loro texture. Un vettore immagini già riconosciute aiuta poi il sistema a migliorare la rilevazione del falso. Una volta rilevata la contraffazione, grazie al diritto di esclusiva fornito dalla registrazione del design del trasmettitore è stato possibile far chiudere immediatamente le pagine web. Nei primi 6 mesi di servizio è stata ridotta la contraffazione online dei prodotti del 68% su scala globale con un controvalore di mercato di alcuni milioni di euro/anno. Sono state chiuse 3100 pagine web.

Inoltre la piattaforma di Griffeshield permette di individuare non soltanto le contraffazioni, ma anche le vendite non autorizzate di prodotti originali.

Le aziende che si sono dotate di servizi anticontraffazione come quello di Griffeshield hanno un indubbio vantaggio sul mercato perché la protezione su Internet che ottengono determina in maniera indiretta un recupero di fatturato e di immagine verso i clienti e consumatori finali, oltre che valorizzare in modo efficace i propri diritti di proprietà industriale e intellettuale.

LARA MORANDOTTI

THE ITALIAN MECHANICS IS RESTARTING, with its head up



Aggregation in business networks, enhancement of digitalization and 4.0 orientation, hoping for a more decisive Government intervention. Here is, for the SME of the Made in Italy manufacturing, part of the formula to face at best the new post-Covid normality. The good news for the engineering world include the confirmation of MECSPE exhibition scheduled at the end of October

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aking available for industry the technological innovation competences for a substantial change: the mission of Tecniche Nuove Group material-

izes with the publication of reviews and books and the implementation of training and updating courses, exhibitions, conventions and webinars. Recent events also provide for a “digital talk” cycle, opportunities of virtual debate to share ideas for Italy System and Manufacturing 4.0. The first meeting “Made in Italy manufacturing: ideas and projects for the sector recovery” involved the virtual participation of Federmeccanica, CFI-Cluster Fabbrica Intelligente, CNA Produzione and Confartigianato Meccanica associations. The event generated an interest-

ing time of discussion and debate about ideas and projects for future scenarios. The solution for a lockdown that did not allow physical interaction with people is digitalization and its capability of connecting people, companies and processes. Tecniche Nuove perfectly knows: the data concerning July 2019 reported 3 million pages and 1.5 million single users on various communication platforms whereas in April 2020 these numbers had more than doubled. “Coronavirus emergency – stated Ivo Nardella, president of Tecniche Nuove Group – exerted a relevant impact on both the society and the industrial world, determining an enormous change in the market and in the way of con-





Ivo Nardella,
president
of Tecniche
Nuove Group



Roberto Zani,
president
of CNA
Produzione



Paolo Rolandi,
president of
Mechanical
Federation
Meccanica
Confartigianato



Alberto Dal Poz,
President of
Federmeccanica



Luca Manuelli,
President of
Cluster Fabbrica
Intelligente

ceiving work. Let us just think of smart working, which has allowed going on working and reducing the damage caused by the lockdown: the remote work has approached a tripled number of users, compared to the past, to the digital world”.

Roberto Zani underlined the need of suitable infrastructures: “Due to the digitalization in course, Italian enterprises will be able to approach international markets that could not reach in the past. Now we need a big effort in the creation of digital infrastructures bringing benefits to the whole community and to all Italian production segments”.

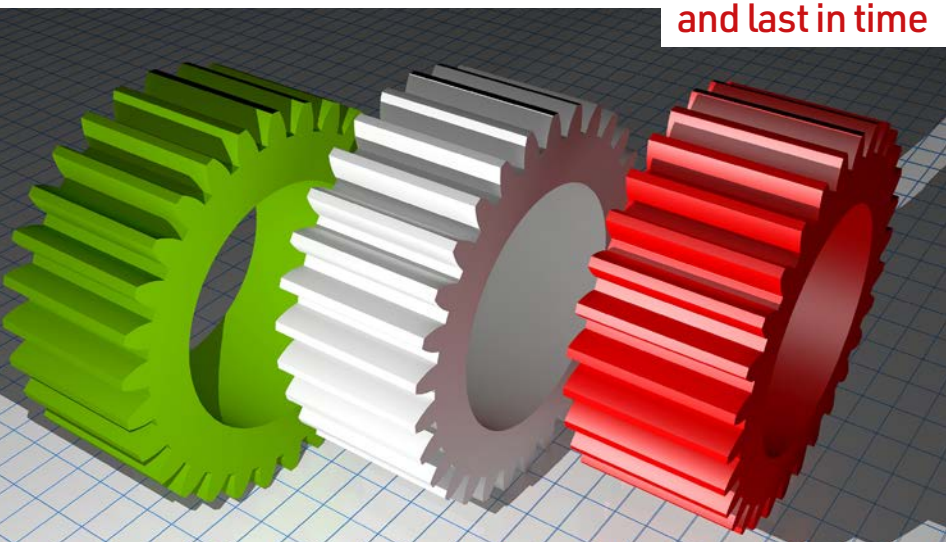
The concept of companies’ social responsibility was expressed by Luca Manuelli, president of the Cluster Fabbrica Intelligente: “Factories are an important reference reality for workers and their families, especially as aid to overcome the crisis; a context where the companies’ commitment towards digitalization can nothing but grow. Concerning this, Confindustria has started a digital maturity project of all its businesses, identifying technological gaps and facilitating financial interventions as support of investments for the development in this issue. This requirement cannot be delayed

for a real recovery. Recently, a monitoring on a sample of 1,200 companies has been submitted to Federmeccanica general council, giving the floor to workers, technical employees and staff strictly connected with the operational ambit. “The most impressive datum –Alberto Dal Poz commented - is inherent to the involvement in corporate choices and in the transparency concerning the information reception. Well, regarding transparency, in 2016 we registered about 70% of workers who answered positively versus 90% of the last survey. Even stronger the growth of the involvement sensation: from 58% in 2016 to today’s 98%. Data demonstrate that at present we all are highly involved and part of a business review process”.

Direction: business networks

The SME aggregation phenomenon is a potentially decisive strategy to restart positively. “In this phase more than ever - Luca Manuelli affirmed - CFI promotes a systemic approach that allows the Smart Factory to overcome Covid emergency with characteristics of better resilience, connectivity and integration, boosted by human capital, technological innovation and sustainability. Integrative action lines must be addressed to involve the manufacturing chains of SME towards the three pillars of the Smart Factory: digital platforms, circular economy and competences”. We need a new cultural approach so that in the business network the big company offers assistance, manufacturing volumes and growth possibility to the smaller one, with benefit for both. “In Italy there are many geographical ambits - Alberto Dal Poz explained - characterized by a coherent vision from the production, logistic and expectation point of view, therefore the aggregation among companies might be simple and fast”. Then Dal Poz further pointed out that it will be worth considering a new approach in the way of managing Italian manufacturing chains because the power relations among States, international markets and industrial contexts will change. The new entrepreneurial generations know they must collaborate and share to grow, with an open source concept that gives up the atavistic parochialism of the Italian culture. “The

The generational turnover results in higher possibility that business networks develop and last in time



generational turnover lived by our companies results in higher possibility that business networks develop and last in time” stated Paolo Rolandi, president of Mechanical Federation. Enthusiastic about the aggregation orientation also Roberto Zani, president of CNA Produzione: “Networks favour our companies’ strengthening. We should operate like Communes, when they aggregate and translate their work into better efficiency through a more efficient exploitation of plants and a better response capability”.

Restarting ... from bureaucracy

“In a list of the main requirements of the manufacturing system for a reliable restart, I would place a great commitment for bureaucracy at zero point. Especially – Dal Poz added – referring to the possibility of achieving liquid assets with concrete support instruments, with priority to the most impacting sectors for employment”. Ivo Nardella highlighted the need of a governmental intervention, too: “As entrepreneurs, we have to organize our enterprises to be resilient to emergencies, using both the staff’s qualitative training to industry 4.0 technologies and applying all dictates that the Smart Factory makes available against difficulties. To improve this process,

we ask for a series of governmental interventions, not only at regional level but also in terms of Europe’s regional areas, ranging from the energy cost equalization to the creation of a European fair tax system, higher efficiency and modernity of the judicial system that can lead to a bureaucratic simplification for enterprises”. Paolo Rolandi

welcomes the idea of a leaner bureaucracy: “Employees’ positive attitude and collaboration are not sufficient to overcome this moment: we need a concrete political support to face a post-war scenario. Speaking of companies, the Italian entrepreneurial fabric can certainly cope with this difficult time, exploiting the new opportunities of the global economy. This pandemic will lay the bases to bring back manufacturing networks, further enhancing the “reshoring” phenomenon that is already taking place, establishing in Italy again some production phases of the manufacturing world currently delocalized abroad”.

LA MECCANICA ITALIANA RIPARTE A TESTA ALTA

Aggregazione in reti di impresa, potenziamento della digitalizzazione e direzione 4.0, auspicando un più incisivo intervento governativo. Ecco, per le PMI della manifattura Made in Italy, parte della ricetta per affrontare al meglio la nuova normalità post-Covid. Tra le buone nuove per il mondo delle meccanica c'è la conferma della fiera MECSPE in programma per fine ottobre. Mettere a disposizione dell'industria le competenze in materia di innovazione tecnologica per un cambiamento sostanziale: la mission del Gruppo Tecniche Nuove si concretizza con la pubblicazione di riviste e libri e la realizzazione di corsi di formazione e aggiornamento, fiere, convegni e webinar. Tra gli eventi recenti c'è che anche un ciclo di "digital talk", occasioni di confronto virtuale per condividere idee per il Sistema Italia e la Manifattura 4.0. Il primo incontro "Manifattura made in Italy: idee e progetti per il rilancio del settore" ha visto la presenza virtuale delle associazioni Federmeccanica, CFI-Cluster Fabbrica Intelligente, CNA Produzione e Confartigianato Meccanica. L'evento ha generato un interessante momento di discussione e confronto su idee e progetti per gli scenari futuri. La risposta ad un lockdown che non permetteva interazione fisica con le persone è la digitalizzazione e la sua capacità di connettere persone, aziende e processi. Lo sa bene Tecniche Nuove: i dati relativi a luglio 2019 riportavano 3 milioni di pagine e 1,5 milioni di utenti unici sulle diverse piattaforme di comunicazione, mentre ad aprile 2020 questi numeri sono più che raddoppiati. "L'emergenza Coronavirus – ha affermato Ivo Nardella, presidente del Gruppo Tecniche Nuove – ha avuto un impatto importante sia sulla società che sul mondo industriale, apportando un enorme cambiamento nel mercato e nel modo di concepire il lavoro. Si pensi allo smart working che ha consentito di continuare a lavorare e di contenere il danno dovuto al lockdown: il lavoro da remoto ha fatto avvicinare al mondo digitale un numero di utenti triplicato rispetto al passato". Roberto Zani ha posto l'accento sulla necessità di infrastrutture adeguate: "Grazie alla digitalizzazione in atto, le imprese italiane si potranno presentare su mercati internazionali a cui prima non riuscivano ad arrivare. Ora serve un grande sforzo nella creazione di infrastrutture digitali che possano dar beneficio a tutta la comunità e a tutti i segmenti produttivi italiani". Il concetto di responsabilità sociale delle aziende è stato espresso da Luca Manuelli, presidente del Cluster Fabbrica Intelligente: "Le fabbriche sono un importante punto di riferimento per i lavoratori e le loro famiglie, soprattutto come aiuto per superare la crisi; un contesto in cui l'impegno delle aziende verso la digitalizzazione non può che crescere. Al proposito, Confindustria ha avviato un progetto sulla maturità digitale di tutte le sue aziende, individuando i gap tecnologici e facilitando interventi finanziari a supporto di investimenti verso lo sviluppo in questo senso. Si tratta di una necessità non prorogabile per un'effettiva ripresa". Di recente, è stato presentato al consiglio generale Federmeccanica un monitoraggio su un campione di 1.200 aziende da cui è emersa la voce di operai, impiegati tecnici e personale strettamente connesso all'ambito operativo. "Il dato più impressionante – ha commentato Alberto Dal Poz – è legato al coinvolgimento nelle scelte aziendali e alla trasparenza con cui si sono ricevute le informazioni. Ebbene, in merito alla trasparenza, nel 2016 registravamo circa il 70% lavoratori che ha risposto in modo positivo, contro il 90% dell'ultima rilevazione. Ancora più forte la crescita della sensazione di coinvolgimento: dal 58% del 2016 all'odierno 98%. I dati dimostrano che in questo momento siamo tutti molto coinvolti e parte di un processo di revisione aziendale".

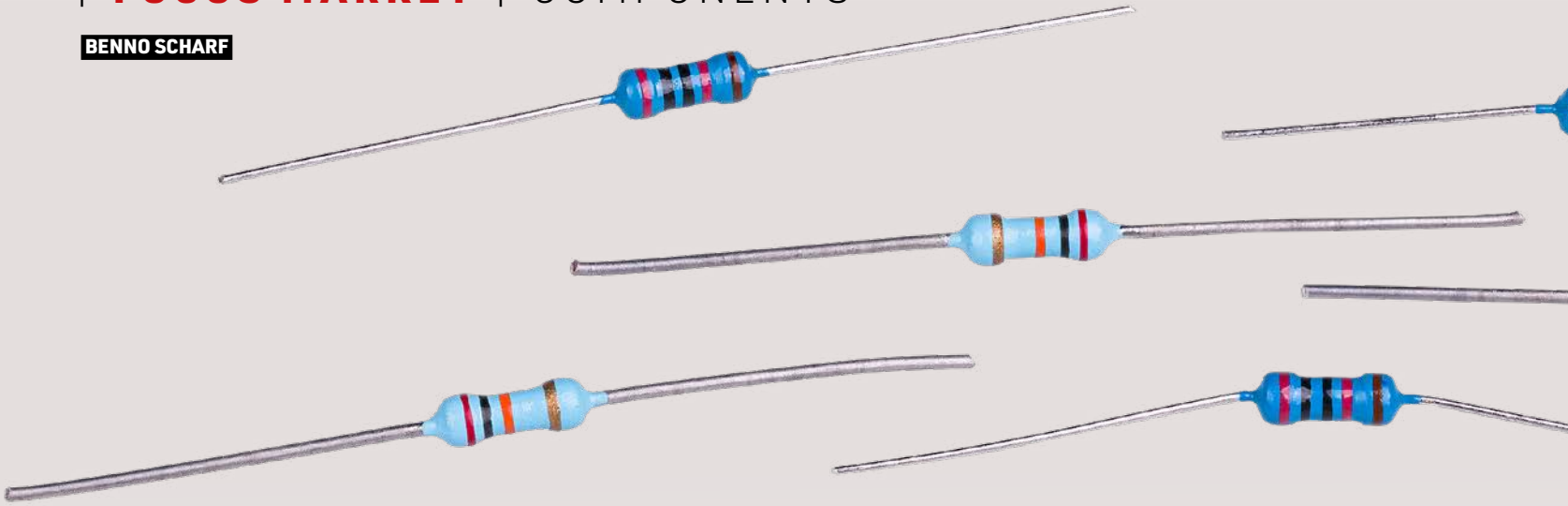
Direzione: reti di impresa

Il fenomeno dell'aggregazione delle PMI è una strategia potenzialmente risolutiva per ripartire in modo positivo. "Mai come in questa fase – ha dichiarato Luca Manuelli – il CFI promuove un approccio sistemico che permetta alla Fabbrica Intelligente di uscire dall'emergenza Covid più resiliente, connessa e integrata facendo leva su capitale umano, innovazione tecnologica e sostenibilità. Linee di azione integrative vanno indirizzate per coinvolgere le filiere di PMI verso i tre pilastri della Fabbrica Intelligente: piattaforme digitali, economia circolare e competenze". È necessario un nuovo approccio culturale per cui nella rete di impresa la grande azienda offra alla più piccola assistenza, volumi produttivi e possibilità di crescita, con benefici per entrambe. "In Italia ci sono molti ambiti geografici – ha spiegato Alberto Dal Poz – in cui esiste una coerenza di visione dal punto di vista produttivo, logistico e di aspettative, per cui l'aggregazione tra aziende potrebbe essere semplice e veloce". Dal Poz ha poi aggiunto che, in generale, sarà da considerare un nuovo approccio nel modo di gestire le filiere italiane perché cambieranno i rapporti di forza tra Stati, mercati e contesti industriali internazionali. Le nuove leve imprenditoriali sanno che bisogna collaborare e condividere per crescere. "Con il ricambio generazionale che le nostre aziende vivono, c'è maggior possibilità che le reti di impresa si sviluppino e perdurino nel tempo" ha affermato Paolo Rolandi, presidente Nazionale Federazione Meccanica. Entusiasta della direzione aggregativa anche Roberto Zani, presidente di CNA Produzione: "Le reti favoriscono l'irrobustimento delle nostre aziende. Bisognerebbe fare come i comuni quando si aggregano e traducono il loro lavoro in una migliore efficienza grazie a un più efficace sfruttamento degli impianti e a una più alta capacità di risposta".

Ripartire... dalla burocrazia

"In una classifica delle necessità principali del sistema manifatturiero per ripartire sul serio, al punto zero c'è un grande impegno in termini di burocrazia. E soprattutto – ha aggiunto Dal Poz – in riferimento alla possibilità di accedere alla liquidità con strumenti concreti di sostegno, con priorità ai settori più impattanti per l'occupazione". Anche Ivo Nardella ha posto l'accento sulle necessità di un intervento governativo: "Come imprenditori dobbiamo organizzare le nostre imprese per essere resilienti alle emergenze, utilizzando sia la formazione qualitativa del personale alle tecnologie dell'industria 4.0, sia applicando tutti i dettami che la Fabbrica Intelligente mette a disposizione contro le difficoltà. Per migliorare questo processo chiediamo una serie di interventi governativi, non solo a livello nazionale ma anche a livello di zone regionali d'Europa, che vanno dalla parificazione del costo dell'energia, alla creazione di una fiscalità europea equa, fino a una maggiore efficienza e modernità del sistema giudiziario che possa portare ad una semplificazione burocratica per le aziende". Paolo Rolandi raccoglie l'idea di una burocrazia più snella: "La positività e la collaborazione dei dipendenti non bastano per superare questo momento: serve un concreto aiuto politico in grado di affrontare uno scenario post-bellico. Dal canto delle aziende, il tessuto imprenditoriale italiano è sicuramente in grado di affrontare questo momento difficile, sfruttando le nuove opportunità dell'economia globale. Questa pandemia creerà le basi per poter riportare più vicino le reti di produzione, dando ancora più forza al fenomeno del "reshoring" che già sta avvenendo, portando alcune fasi produttive del mondo manifatturiero, ora dislocate all'estero, di nuovo in Italia".

BENNO SCHARF



The passive trend in 2019

As they are strongly connected with the automotive sector, passive components were affected by the consequences the field suffered from last year

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he recent surveys, carried out by trade associations, have led to review the classification criteria of this type of components. This results in lower consumption data than those previously released. The German ZVEI trade association, in particular, substantially confirming the traditional values assigned to the EMEA area, remarkably revised those concerning China and the rest of Asia Pacific. Therefore, the data reported in the table are not comparable with past years'. However, nothing has changed in consumptions' trend in the various geographical areas.

The market

Similarly to what happened for semiconductors, 2019 was a negative year for passive, too. The -10.8% downturn occurred on a world scale (according to still temporary data), while the areas affected by the most serious drops were Rest Asia Pacific (then China excluded) and Americas. The cause of that resides in the general world economic crisis, particularly felt in the application sectors of components, mainly in automotive. The decreases registered in Ja-

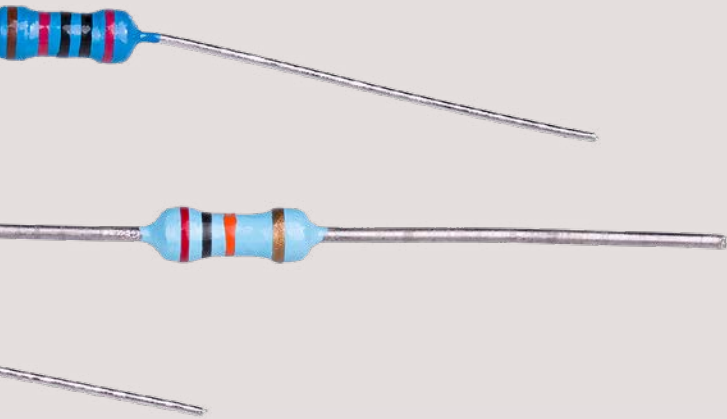
pan and EMEA were instead under the average. Capacitors still are the most important category, with a 48% share out of the total in 2019, while inductors and resistors respectively represented 25% and 23%. The remaining 4% goes to EMC filters.

Application sectors

The automotive always remains the main application of passive. On a world scale, it absorbs about 30% of the world consumption while in the only EMEA its incidence rises to 40%. Telecommunications rank second with the approximate 30% incidence at international level but only with 15% in EMEA. Computer industry is the third application sector, with 20% in the world and 10% in EMEA. Consumer electronics, including also white goods, maintains its 12% share in the world but only 7% in EMEA. Arms and miscellaneous industry finally remains and in EMEA the latter however reaches 25%.

Manufacturing

Japan has always been the main producer and with the new estimate of the world total, its incidence



PASSIVE COMPONENTS IN 2019

Consumption of passive components from 2017 to 2019 in the main geographical areas (USA million dollars)

	2017	2018	2019	% Variation 2019/18
EMEA	5.0	6.1	5.5	- 9.8
Of which:				
Germany	2.1	2.5	2.4	- 4.0
Americas	2.6	3.2	2.8	- 12.5
Japan	2.0	2.2	2.0	- 9.1
China	12.3	15.5	13.9	- 10.3
Rest Asia Pacific	4.7	6.1	5.3	- 13.1
Total	26.6	33.1	29.5	- 10.8

Sources: EPCIA (European Passive Components Industries Association), ZVEI (Zentralverband Elektrotechnik- und Elektronikindustrie), ECIA (Electronic Components Industry Association)

becomes 37% approximately. The USA production is instead estimated by 25% of the world total. The main manufacturers are big Japanese Groups Murata, TDK and Taiyo. They are joined by the United States AVX Corporation and Kemet, the South-Korean Samsung and the Chinese Fenghua, headquartered in Hong Kong.

Prospects

At the beginning of 2020, various experts agreed in glimpsing the recovery start, after the not smart 2019. Then the coronavirus crisis disrupted all forecasts. At present nobody doubts of the unavoidable drop in all component sectors and then in passive one, too. Two months of lockdown of user companies have already influenced orders. The downturns indicated for the yearend are different; anyway, a likely two-figure drop is envisaged, perhaps ranging from -10% and -15%. A change in the repartition by product types does not seem instead probable: capacitors will go on representing about the half of the total.

L'ANDAMENTO DEI PASSIVI NEL 2019

Essendo fortemente legati al settore dell'automobile, i componenti passivi hanno subito le conseguenze del momento difficile che il comparto ha attraversato l'anno scorso. Le recenti rilevazioni, condotte dalle associazioni di categoria, hanno portato a rivedere i criteri di classificazione di questo tipo di componenti. Ne risultano dati di consumo inferiori a quelli diffusi in precedenza. In particolare l'associazione di categoria tedesca ZVEI, confermando in sostanza i valori tradizionali assegnati alla zona EMEA, ha rivisto in misura non indifferente quelli relativi alla Cina ed al resto dell'Asia Pacifico. Perciò i dati riportati nella tabella non sono comparabili con quelli degli anni scorsi. Nulla è però mutato nell'andamento dei consumi nelle varie aree geografiche.

Il mercato

Analogamente a quanto avvenuto per i semiconduttori, anche per i passivi il 2019 è stato un anno negativo. A livello mondiale si è verificata una flessione del -10,8% (secondo dati ancora provvisori), mentre le aree con maggiori cali sono state il Resto Asia Pacifico (esclusa quindi la Cina) e le Americhe. La causa di ciò è la generale crisi economica mondiale, che si è fatta sentire in modo particolare nei settori d'applicazione dei componenti, soprattutto nell'auto. Inferiori alla media sono invece state le flessioni registrate nel Giappone e nell'EMEA. I capacitori continuano ad essere la categoria più importante, con una quota del 48% sul totale nel 2019, mentre inductors e resistors hanno rappresentato rispettivamente il 25% ed il 23%. Il restante 4% spetta ai filtri EMC.

I settori d'applicazione

L'auto rimane sempre l'applicazione principale dei passivi. A livello mondiale

essa assorbe circa il 30% del consumo mentre nella sola EMEA la sua incidenza sale al 40%. Le telecomunicazioni sono al secondo posto con un'incidenza stimata a circa il 30% sia a livello mondiale, ma solo del 15% nell'EMEA. L'informatica è poi il terzo settore d'applicazione con il 20% nel mondo ed il 10% nell'EMEA. L'elettronica di consumo, comprendente anche l'elettrodomestico bianco, mantiene la sua quota del 12% nel mondo, ma solo il 7% nell'EMEA. Rimangono infine per il resto gli armamenti e l'industria varia, che nell'EMEA arriva però al 25%.

La produzione

Il Giappone è da sempre il principale produttore e con la nuova valutazione del totale mondiale la sua incidenza viene ad essere di circa il 37%.

La produzione USA invece è stimata sul 25% del totale mondiale. I principali produttori sono i grandi gruppi giapponesi Murata, TDK e Taiyo. Ad essi si affiancano gli statunitensi AVX Corporation e Kemet, il sudcoreano Samsung ed il cinese Fenghua, con sede a Hong Kong.

Le prospettive

All'inizio del 2020 i vari esperti concordavano nel vedervi l'inizio della ripresa dopo il non brillante 2019. Poi la crisi del coronavirus ha sconvolto ogni previsione. Ora nessuno dubita dell'inevitabile calo in tutti i settori della componentistica e quindi anche in quello dei passivi. Già due mesi di fermata delle industrie utilizzatrici hanno lasciato il segno negli ordinativi. Le flessioni indicate per la fine dell'anno sono diverse; in ogni caso si parla di un presumibile calo a due cifre, forse tra il -10% ed il -15%. Non sembra invece probabile un mutamento della ripartizione per tipi di prodotto: i capacitori continueranno a rappresentare circa la metà del totale.

BENNO SCHARF

The market of CONNECTORS

Last year connectors worth 69.6 billion dollars were sold, amounting to 12.1% of the global consumption of electronic components; these products scored a constant growth and in 2019 their sales increased by 4.3%

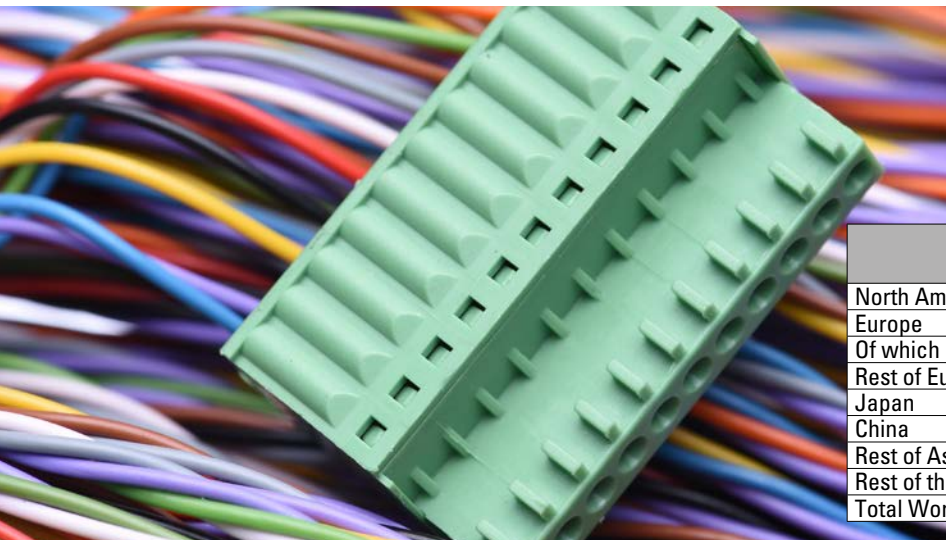
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he field of “connectors”, in the current terminology, is the most documented among all those regarding electronic components, due to the United States review Connector Supplier, a publication by the Bishop & Associates research agency, specialized in the sector. The repartition by geographical areas slightly differs from the one used in the semiconductor sector; in particular, Middle East is no longer considered together with Europe as part of traditional EMEA, but it is in the Rest of the World item, which includes South America and Australia, too.

Market and applications

In 2019 connectors worth 69.6 billion dollars were sold, amounting to 12.1% of the global consumption of electronic components. Unlike components in their whole, these products have scored a constant growth and even in in the bad 2019-year their sales rose by 4.3%. The most dynamic geographical areas were China and North America, which registered growths exceeding the general average. The rise in the Rest Asia Pacific was fair good, too.

The primary application sectors are the automotive industry and telecommunications, which together represent 46.1% of the total; informatics, including also peripherals, represents a further 25.6% with miscellaneous industry. Modest is instead the incidence of household appliances, both white and



2016 - 2019 SALES OF CONNECTORS IN THE WORLD (BILLIONS OF US DOLLARS)

	2016	2018	2019	% variation 2019/2018	% incidence 2019
North America	11.6	13.9	14.4	3.6	20.7
Europe	10.7	14.1	14.5	2.8	20.8
Of which Germany	2.9	3.8	3.9	2.6	5.6
Rest of Europe	7.8	10.3	10.6	2.9	15.2
Japan	4.9	5.1	5.2	2.0	7.5
China	15.6	20.9	22.3	6.7	32.0
Rest of Asia Pacific	9.0	9.7	10.1	4.1	14.5
Rest of the World	2.4	3.1	3.1	=	4.5
Total World	54.2	66.7	69.6	4.3	100.0

Source: Connector Supplier

CONSUMPTION OF CONNECTORS BY APPLICATION SECTOR IN 2019 (BILLIONS OF US DOLLARS)

	Value	% out of the total
Automotive	16.5	23.7
Telecommunications	15.6	22.4
Computers and peripherals	9.3	13.4
Miscellaneous industries	8.5	12.2
Transports	4.8	6.9
Arms, space navigation	4.0	5.7
Household appliances	3.4	4.9
Electro-medicals	2.1	3.0
Others	5.4	7.8
Total	69.6	100.0

Source: Connector Supplier

brown goods, with just 4.9%. The mentioned sectors had essentially stable situations in 2019; therefore, the growth of the connector market should be largely ascribed to new technological requirements in the ambit of the same sectors.

Manufacturers

Manufacturing largely occurs in the United States and in Far East, to a lesser extent in Europe. Out of the 10 major manufacturers, which together represent about 60% of the world production, 3 are headquartered in the United States, 2 in Japan and 3 in Europe, respectively in Switzerland, Ireland and Germany. Sector leader, with the 15.4% market share, is TE Connectivity Group (Tyco Electronics), partly Swiss and partly US. Second and third rank the United States Amphenol and Molex, with respective 11.4% and 8.4% shares. The Irish Aptiv and the Taiwanese Foxconn follow in the order, with 7.8% shares each. Behind the 5 leaders, which together 50.8% of the market, are positioned, with shares under 4% each, the Chinese Luxshare Precision, the Japanese Yazaki and JAE, the Thai J.S.T. and the German Rosenberger; together, they make up a further 9.0%.

Prospects

In the 2016-2019 four-year period, the sales of connectors grew in the world by as much as 28.4%. This makes them an atypical component, not affected by the 2019-crisis. However, a rising number of applications combined with a slight price rise were the two factors of this success. Nevertheless, this causes concern in the sector: it is common opinion that the growth still in course will stop, for the first time resulting in a slight-average market downturn.

IL MERCATO DELLE INTERCONNESSIONI

Lo scorso anno sono state vendute interconnessioni per 69,6 miliardi di dollari, pari al 12,1% del consumo globale di componenti elettronici; questi prodotti hanno avuto una crescita costante e nel 2019 le loro vendite sono aumentate del 4,3%. Il comparto delle interconnessioni, "connectors" nella terminologia corrente, è il più documentato tra tutti quelli della componentistica elettronica grazie alla rivista statunitense Connector Supplier, una pubblicazione curata dall'agenzia di ricerche Bishop & Associates, specializzata nel settore. La ripartizione per aree geografiche differisce lievemente da quella in uso nel settore dei semiconduttori; in particolare il Medio Oriente non è considerato insieme all'Europa a formare la tradizionale EMEA, ma è nella voce Resto del Mondo, di cui fanno parte anche il Sudamerica e l'Australia.

Il mercato e le applicazioni

Nel 2019 sono state vendute interconnessioni per 69,6 miliardi di dollari, pari al 12,1% del consumo globale di componenti elettronici. A differenza della componentistica nel suo insieme questi prodotti hanno avuto una crescita costante e persino nel brutto anno 2019 le loro vendite sono aumentate del 4,3%. Le aree geografiche più dinamiche sono state la Cina e l'America Settentrionale, che hanno registrato aumenti superiori alla media generale. Discreta è stata anche la crescita nel Resto Asia Pacifico. I settori d'uso principali sono l'industria automobilistica e le telecomunicazioni, che insieme rappresentano il 46,1% del totale; l'informatica, comprendente anche le periferiche, rappresenta con le industrie varie un ulteriore 25,6%. Modesta è invece l'incidenza dell'elettrodomestico, sia bianco che bruno, con soltanto il 4,9%. I settori citati hanno avuto situazioni sostanzialmente

stabili nel 2019; la crescita nel mercato delle interconnessioni è quindi da attribuirsi in buona misura a nuove esigenze tecnologiche nell'ambito degli stessi settori.

I produttori

La produzione avviene in buona parte negli Stati Uniti e nell'Estremo Oriente, in misura minore in Europa. Tra i 10 maggiori produttori, che insieme rappresentano circa il 60% della produzione mondiale, 3 hanno sede negli Stati Uniti, 2 in Giappone e 3 in Europa, rispettivamente in Svizzera, Irlanda e Germania.

Leader del settore, con una quota di mercato del 15,4%, è il gruppo TE Connectivity (Tyco Electronics), in parte svizzero e in parte statunitense. Al secondo e terzo posto sono gli statunitensi Amphenol e Molex, con quote rispettive dell'11,4% e dell'8,4%. Seguono nell'ordine l'irlandese Aptiv e la taiwanese Foxconn, con quote ognuna del 7,8%. Alle spalle dei 5 leader, che insieme controllano il 50,8% del mercato, si trovano, con quote inferiori al 4% ognuna, la cinese Luxshare Precision, le giapponesi Yazaki e JAE, la thailandese J.S.T. e la tedesca Rosenberger; esse insieme rappresentano un ulteriore 9,0%.

Le prospettive

Nel quadriennio 2016-2019 le vendite di interconnessioni sono aumentate nel mondo di ben il 28,4%. Ciò ne fa un componente atipico, che non ha risentito della crisi del 2019. Un crescente numero di applicazioni insieme però a un lieve rincaro dei prezzi sono stati i due fattori di questo successo. Ora però il coronavirus causa preoccupazione nel settore: l'opinione comune è che la crescita finora in corso si debba interrompere, portando per la prima volta a una lieve o media flessione del mercato.

MONICA CUEL

Uptake test bench for kitchen hoods

It reduces the costs and times of a high number of tests, with the 80% saving of the operator's time



and of tests, due to the automatic reports at the test end: developed in conformity with Industry 4.0, the Test Bench by 3P Engineering carries out the performance measurement (uptake, pressure, electric power and number of revolutions), in conformity with ISO 5801, ISO 5167, IEC/EN 61591 regulations. New functions and more efficiency are achieved through 3P Labware 2020 version (IEC 61591:2019 compliant), advanced software platform with user-friendly interface for the Test Bench management.

Banco prova portata per cappe da cucina

Riduce i costi e i tempi di un alto numero di prove, con un risparmio dell'80% del tempo operatore e dei test, grazie ai report in automatico a fine prova: sviluppato in chiave Industria 4.0, il Banco Prova di 3P Engineering effettua la misura delle prestazioni (portata, pressione, potenza elettrica e numero di giri), in conformità alle norme ISO 5801, ISO 5167, IEC/EN 61591. Nuove funzionalità e maggiore efficienza sono ottenute grazie alla versione 3P Labware 2020 (IEC 61591:2019 compliant), piattaforma software evoluta con interfaccia user-friendly per la gestione del Banco Prova.

Made in Italy production

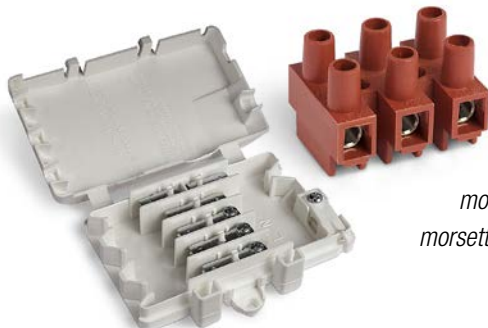
Körner Srl is specialized in the production of electric components, terminal blocks (like screw/screwless connection terminal blocks for a fast wiring during installation or the more common Mamut screw/screw terminal blocks), low voltage connectors with screw-screw, screw-faston and faston-faston fixing, connection boxes (boxes with lamellar 6.3x0.8 mm connections) mainly intended for the lighting, household appliance and panel industry. In recent

years, the company has gained new customers in the HVAC and refrigeration sectors, so widening its offer. Due to its know-how, Körner can study the choice of the most suitable plastic materials and metal components in conformity with reference regulations, it can develop the plastic body tools and equipment for metal parts, it can execute the assembling of components up to the supply of the finished and certified product. All products are made in Italy.

per un cablaggio veloce in fase di installazione o le più comuni morsettiere Mamut vite/vite), connettori a bassa tensione con fissaggio vite-vite, vite-faston e faston-faston, scatole di connessione (scatola con connessioni lamellari 6,3x0,8 mm) destinati principalmente ai settori dell'illuminazione, dell'elettrodomestico e della quadristica. Negli ultimi anni l'azienda ha acquisito nuovi clienti nel settore HVAC e della refrigerazione, ampliando così la propria offerta. Grazie al suo know-how Körner è in grado di studiare la scelta dei materiali plastici e dei componenti metallici più idonei confacenti alle normative di riferimento, sviluppare gli stampi dei corpi plastici e le attrezzature per le parti metalliche, mettere a punto l'assemblaggio dei componenti fino alla fornitura del prodotto finito e certificato. I prodotti Körner sono tutti made in Italy.

Produzione made in Italy

Körner Srl è specializzata nella produzione di componenti elettrici, morsettiere (come morsettiere a innesto vite/rapido



Steam valve

Meteor steam valve is a powered device used in professional ovens. The motor operates the valve by activating the position micro-switch. The valve opening and closing regulate the flow of steam/humidity generated inside the oven while cooking. This system achieves the food crispy effect, speeding up cooking time and decreasing consumption.

Valvola a vapore

La valvola a vapore Meteor è un dispositivo motorizzato per forni professionali. Il motore aziona la valvola attivando il microinterruttore di posizione. Chiusura e apertura della valvola regolano il flusso di vapore/umidità generato in cottura nel forno. Con questo sistema si ottiene l'effetto crispy dell'alimento velocizzando il tempo di cottura e riducendo i consumi.



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Flat



Worm



Parallel shaft



Planetary



The knowledge, the range.



ATB-4SAFETY

ATB-4SAFETY by Abag allows carrying out electrical safety measurements and functional tests with a single tool. Available in single-phase and single/three-phase 1 W to 22 kW @ 400 Vac versions. It is equipped with industrial PC Panel, hard disk in SSD, MS Windows 10 IoT LTSC Enterprise 64 bit operating system, database with all test parameters, measuring results and fields of component and/or accessory quality and traceability management, MS Access format, interfacing functions with the most common databases, I.E.

Oracle, SQL server, CSV File etc., two LAN 10/100/1000 connections and Wi-Fi connection with double antenna, all as standard equipment.

ATB-4SAFETY

ATB-4SAFETY di Abag permette di effettuare le misure di sicurezza elettrica e le prove funzionali con un unico strumento. Esiste nelle versioni monofase e mono/trifase da 1 W a 22 kW @ 400 Vac. Dispone di un Panel PC industriale, hard disk in SSD, sistema operativo MS Windows 10 IoT LTSC Enterprise 64 bit, data base con tutti i parametri di test, risultati di misura più campi di gestione qualità e rintracciabilità componenti e/o accessori, formato MS Access, funzioni di interfacciamento con i data base più diffusi, I.E. Oracle, SQL server, CSV File ecc., due connessioni LAN 10/100/1000 più connessione WiFi con doppia antenna, tutto di serie.

Printed circuit boards

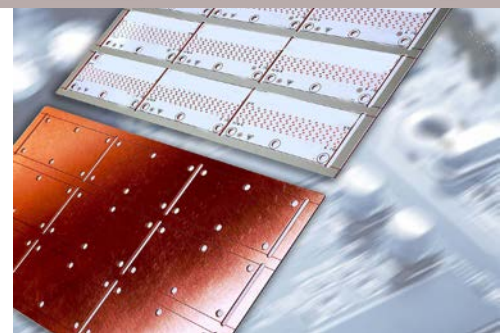
Piciesse is specialized in the production of printed circuit boards, with a constant commitment to improving qualitative policies aimed at the unceasing technological upgrade required by the sector. An example is represented by the production of I.M.S (Insulate Metal Substrate) circuits for power management. This circuit typology allows integrating SMD electronic power components on an aluminium or copper support, on which it is possible to implement a standard single-side printed circuit board. The heat generated by the components welded on the copper circuit uniformly propagates by conduction, through a thermal-conductive dielectric, inside a metal support, thus allowing

a higher efficiency of the dissipation system. These supports can manage even notable power densities, permitting to dissipate high thermal powers on small surfaces by means of circuits with copper up to 400 µm of thickness and over, or of other state-of-the-art technologies, with controlled dielectric removal. This technology is largely used in industrial ambit, in the sector of power modules for household appliances, of electric handling machines and drives, LED lighting and renewable energy applications. Therefore, the need of dissipating more and more power in narrower spaces and in challenging environmental conditions results in a very long life of this technology, giving birth to high-efficiency solutions that would be hardly feasible with other technologies,

keeping costs and performances unchanged.

Circuiti stampati

Piciesse è specializzata nella produzione di circuiti stampati con un costante impegno per il miglioramento delle politiche qualitative volte al continuo rinnovamento tecnologico che il settore richiede. Ne è un esempio la produzione di circuiti I.M.S (Insulate Metal Substrate) per la gestione di potenza. Questa tipologia di circuiti consente di integrare componenti elettronici SMD di potenza su un supporto in alluminio o rame su cui è possibile realizzare un classico circuito stampato monofaccia. Il calore generato dai componenti saldati sul circuito di rame si propaga uniformemente per conduzione, attraverso un dielettrico termoconduttivo, all'interno di un supporto metallico, consentendo maggiore efficienza del sistema di dissipazione. Questi supporti possono gestire anche densità di potenza notevoli consentendo di



dissipare elevate potenze termiche su superfici ridotte mediante circuiti con rame fino a 400 µm di spessore e oltre o tecnologie allo stato dell'arte con rimozione controllata del dielettrico. Questa tecnologia è molto utilizzata in ambito industriale nel settore dei moduli di potenza per elettrodomestici, delle macchine elettriche di movimentazione e azionamenti, per l'illuminazione a LED e le energie rinnovabili. L'esigenza di dissipare sempre maggiore potenza in spazi più ristretti e in condizioni ambientali più spinte fa sì che questa tecnologia crei soluzioni difficilmente realizzabili con altre tecnologie a parità di costi e prestazioni.

Blanking presses

Cagnoni workshop, founded in 1946 by Muzio Cagnoni, is specialized in the sector of high-precision cold blanking. Its broad fleet of blanking presses, in constant evolution, assures the possibility of machining different product typologies at very competitive prices. Able to work any metal, from iron to Aisi steel, brasses and so on, with thicknesses that range from 0.5 mm to 4 mm, Cagnoni workshop

supplies leader household appliance companies with components that go from metal brackets to boiler supports, boiler caps, thermostat covers and various contacts. The plus of in-house manufacturing tools and of interacting with sector designers to improve product features, providing precise timely solutions, gives utmost warranty to customers and allows satisfying at best even the most challenging demands.

Presses per tranciatura

L'officina Cagnoni, fondata nel 1946 da Muzio Cagnoni, è specializzata nel settore della tranciatura a freddo di massima precisione. Il suo ampio parco presse per tranciatura, in continua evoluzione, garantisce la possibilità di lavorare diverse tipologie di prodotti a prezzi molto competitivi. In grado di lavorare qualunque metallo dal ferro agli acciai Aisi, all'ottone eccetera, con spessori che vanno dallo 0,5 mm fino a 4 mm, l'officina Cagnoni fornisce le più importanti aziende di elettrodomestici, con particolari

che vanno da staffe in metallo, supporti per caldaie, calotte per boiler, coperchi per termostati, contatteria varia. Il vantaggio di realizzare stampi internamente e di interagire con i progettisti del settore per migliorare le caratteristiche dei prodotti, dando soluzioni precise e tempestive, offre una enorme garanzia al cliente e consente di soddisfare al meglio anche le richieste più esigenti.



MDO-2000E oscilloscopes

The MDO-2000E range by GW Instek, brand distributed by ALLdata, includes a series of multi-domain oscilloscopes that offer a valid alternative to the expensive spectrum analysers available on the market.

Most of FFT analyses do not allow the search function in the time domain, therefore preventing the analysis in the frequency domain and the simultaneous measurement of the components of the modulated signal.

The Spectrum Analyzer function of the MDO-2000E series provides a better resolution in the frequency domain versus the FFT function of standard oscilloscopes, permitting to surf in the various domains through cursors.

Oscilloscopi MDO-2000E

La serie MDO-2000E di GW Instek, marchio distribuito da ALLdata, comprende una gamma di oscilloscopi multi dominio che offrono una valida alternativa ai costosi analizzatori di spettro che si trovano in commercio.

La maggior parte delle analisi FFT non permette la funzione di ricerca nel dominio del tempo, rendendo quindi impossibile l'analisi nel dominio delle frequenze e la misura simultanea delle componenti del segnale modulato. La funzione Spectrum Analyzer della serie MDO-2000E fornisce una migliore risoluzione nel dominio delle frequenze, rispetto alla funzione FFT dei normali oscilloscopi, consentendo di navigare nei vari domini grazie ai cursori.



Flow meter

The constant-reading flow meter by Ateq in 3U 19" industrial format, D670, exploits the technology of the air laminar flow with measurements from 1 to 10,000 litres/hour. It is Industry 4.0-ready: it is equipped with both USB port for the management of production data and tool parameters and Ethernet port for the connection to the net that allows the management and the control from remote in real time.

Misuratore di portata

Il misuratore di portata a lettura continua di Ateq in formato industriale 3U 19", D670, sfrutta la tecnologia a flusso laminare d'aria con misure da 1 a 10.000 litri/ora ed è Industry 4.0 ready: è dotato sia di porta usb per la gestione dei dati di produzione e i parametri dello strumento, sia di porta ethernet di collegamento alla rete che permette la gestione e il controllo da remoto in tempo reale.



The technical manager's column
La rubrica del responsabile tecnico

Note: the brands involved are asked to alert us of any changes. We cannot accept responsibility for any changes we are not notified of.

NOTA: le case interessate sono pregate di segnalare tempestivamente ogni eventuale cambiamento. Non si assumono responsabilità per variazioni non segnalate

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various products
prodotti vari



Atel s.r.l.

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- Atel vanta 40 anni di servizio nella componentistica per Elettrodomestici, Vending e Horeca.
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Specialized in the production of electro-magnetic components, as well as in the assembly of pcbs, the company is also well skilled and qualified in manufacturing interference suppression filters.



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COPRECI, one of the most important industrial group located in the Basc Countries, 8 factories worldwide, part of MCC Group, is manufacturing components for domestic appliances since 1963; Gas Valves and Thermostats for domestic, and professional appliances, electronic gas systems for cooking and heating, Induction, Gas Taps for barbecue and heating, gas rails and tubes for cooking, DW and WM pumps and motors.



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Gitronica has its strong roots in Guzzini Group and, after integrating its core values, in 2014 it embarked on a new business venture, pursuing a business development strategy based on the design and production of Custom Electronics: Power Board, Touch user interface, led bar for household appliances, wellness, industrial and lighting sectors. Gitronica is a provider of innovative technological solutions and an ideal partner for its customers.

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Inarca have been designing and developing terminals, connectors, connection technologies and machines since 1964, becoming a leading company for electrical connections.

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Web: www.itwappliance.com - www.itw.com

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CLOSURE SYSTEMS

Dishwasher Latches, PTC Door Locks, Solenoid Door Locks, Door Latches, Floaters, Switches

FLUID MANAGEMENT

Pressure Sensors, Pressure Switches, Diverter Valves, Drying systems

HEATING & COOLING

Gas Igniters, Re-Ignition modules, Switch Harnesses, Terminal Blocks, Mufflers and Starters for compressors

STRUCTURES

Quick lift systems, Adjustable Feet, Dumpers, Fasteners, Led lamps



Mp Gas Controls s.p.a.

Via Neziole 2 - 25055 Pisogne (BS)
Tel. +39 0364 89020 - Fax +39 0364 89013
E-mail: info@mpgascontrols.com
Web: www.mpgascontrols.com



"Established in 1979, MP manufactures brass controls and gas supply valves for household appliances, in particular for cooking, camping and heating appliances.

MP operates with the Quality System certified according to EN ISO 9001:2015.

All MP products are EC approved according to EU/2016/426 gas appliances regulation and besides this, specific approvals by important marks such as DVGW, CSA, Australian Gas have been obtained."



New Ermes Europe s.r.l.

Via Risorgimento, 19 - 21020 Crosio Della Valle (VA)
Tel. +39 0332966106 - Fax +39 0332966236
E-mail: info@newermeseurope.com
Web: www.newermeseurope.com
Sede Legale: viale San Michele del Carso 4 - 20144 Milano

"Innovation and customizing are the key of our company success.

Join us for our high performing nozzles and our new set specially designed for PETS"

- Nozzles, turbo-nozzles, power-nozzles and accessories for stick-cleaners, vacuum cleaners, wet & dry, steam and steam-vacuum cleaners for domestic, commercial and industrial use - Centralized equipments and spare parts.
- Research and development of new concepts for the vacuum accessories
- Design and restyling of vacuum machines and vacuum accessories
- Moulds engineering and manufacturing
- Fast prototyping



Nuova Sca

Sede: Via G. Di Vittorio, 7 - Mag: Via Masi, 2 - 16/A
40011 Anzola Dell'emilia (BO)
Tel. +39 051734588 (2L.) - Fax +39 051735167
E-mail: info@nuovasca.com
Web: www.nuovasca.com

RUOTE E ROTELLE PER ELETTRODOMESTICI
WHEELS AND CASTORS FOR HOUSEHOLD APPLIANCES



Okida

Orhan Gazi Mahallesi 1656.sokak no:23
34538 Esenyurt / Istanbul - TÜRKIYE
Tel. 0090 212 672 99 33 - Fax 0090 212 672 99 39
E-mail: web@okida.com
Web: <http://okida.com>

Okida, a Turkish company leader in its sector, has been designing and manufacturing electronic modules for the white goods sector since 1987. The main products are oven timers and control modules for cookers, ovens, hoods and refrigerators. The entire design of the products is realized in the R & D department. In the production lines the company uses state of art technology machinery and, from raw material entry to the finished product, each production phase is strictly controlled. It exports to over 20 European countries and in the American continent. In September 2018 Sabaf Group acquired 100% of the company's capital.

Okida, azienda turca leader nel settore, progetta e realizza moduli elettronici per il settore degli elettrodomestici dal 1987. I prodotti principali sono timer per forni da incasso e controller per cucine, forni, cappe e frigoriferi. L'intero design dei prodotti è realizzato nel dipartimento di ricerca e sviluppo dell'azienda. Nelle linee di produzione vengono utilizzati macchinari tecnologicamente all'avanguardia e, dall'entrata delle materie prime al prodotto finito, ogni fase è rigorosamente controllata. Esporta in oltre 20 paesi europei e nel continente americano. Nel settembre 2018 il Gruppo Sabaf ha acquisito il 100% del capitale della società.



Omega Fusibili s.p.a.

Via Edison, 10/12 - 20090 Assago (MI)
Tel. +39 02488481 - Fax +39 024882522
E-mail: omega@omegafusibili.it
Web: www.omegafusibili.it

Omega Fusibili è da anni un'azienda leader nella produzione e distribuzione di:

- Fusibili cilindrici, da circuito stampato e termici
- Portafusibili
- Induttanze
- Supercondensatori
- Morsetti
- Interruttori, pulsanti e indicatori luminosi
- Sensori
- Spine e prese IEC
- Connettori e cavi d'alimentazione
- Connettori per Led
- Batterie e portabatterie
- Ventole AC e DC
- Ventole elettroniche EC
- PLC e dispositivi di controllo
- Illuminazione Led industriale
- Pulsanti uomo morto
- Laser scanner



Print s.r.l.

Via Volontari del sangue, 26 - 20851 Lissone MB
E-mail: print@print.it
Web: www.print.it

Decorative labels solutions

We're specialised in customising all kind of emblem, doable with five different technologies:

- "POLYCARBONATE": adhesive plates made for controller panels, with various thicknesses, with (or without) embossed buttons;
- "ECOPRINT" soft touch: technology which allows the emphasis of any brand with low mold cost;
- "KROMEX", high visual impact technology, comparable to ABS, with the same quality standards but cheaper mold cost.
- "HDR" rubber feel: last born but not the least, it permits to point out any logo in minimal details.

For all above, we are your ideal partner.

Siamo specializzati nella realizzazione di emblemi personalizzati, utilizzando cinque diverse ed innovative tecnologie:

- "POLYCARBONATO": targhe adesive per tastiere a membrana a diversi spessori, con eventuali tasti a rilievo;
- RESINATURA "DOX SYSTEM" diamo rilievo a una semplice etichetta trasformandola in un marchio 3D;
- "ECOPRINT" soft touch, tecnologia che permette la valorizzazione del marchio con un contenuto costo di stampa;
- "KROMEX", tecnologia ad alto impatto visivo, paragonabile all'ABS, con stessi standards qualitativi e minor costo di stampa
- "HDR" rubber-feel, ultima tecnologia nata, che ci permette di enfatizzare qualsiasi logo nei minimi dettagli.

Siamo il partner ideale per la migliore visibilità dei vostri marchi.



Spival s.p.a.

Via G. Marconi, 214 - 51036 Larciano (PT)
Tel. +39 0573859001 - Fax +39 0573859002
E-mail: office@spival.com
Web: www.spival.com

The company Spival S.p.A. has been producing accessories and brushes for domestic and industrial cleaning from 1953. Now it offers a wide range of products for vacuum cleaners, steam and steam + vacuum machines. The variety of products cover all needs to the producers of household appliances, central vacuum systems and those who deal with spare parts, entirely with products made in Italy. The company Spival is the ideal partner for the design and construction of your new products like brushes and accessories for appliances, in fact the whole process of development and production are carried out inside and the experience accumulated during all these years makes it a reference supplier for the world market.



Tastitalia s.r.l.

Via Jesina 27/P - 60022 Castelfidardo (AN) - Italy
Tel. +39.071.7825276
Mail: info@tastitalia.com
Web: www.tastitalia.com

We are the performer who brings together man and technology through harmonious and personalised HMI solutions.

We offer customers an immense knowledge base, cutting-edge skills and significant technologies.

We aim to be the sole reference, the partner who brings substantial added value and contributes to the innovation of the companies who use our services.

We operate in multiple sectors, delivering relevant horizontal knowledge to guarantee our customers the best in terms of performance and innovation.

Werkcam

Excellence in Plastic and
Technical Manufacturing

Werkcam S.r.l. a socio unico

Società soggetta a direzione e coordinamento da parte di Think Plastic S.r.l.

Via G. Garibaldi 27 - 20862 - Arcore MB - Italy
Tel. +39 039 62731 - Fax +39 039 6273210
Email: sales@werkcam.eu
Web: www.werkcam.eu

The winning strategy of Werkcam Srl is the ability to offer something innovative to the market every day. Born from the acquisition of Vorwerk Folletto Manufacturing with its specialization in the assembly of technical accessories for the household appliance industry combined with the experience in the injection molding of technopolymers of Caminada Srl as well as the new entry Plastikcam east Doo (Serbia) complete an ideal triangle controlled by Think Plastic Srl, a holding company owned by the Caminada family. Able to operate with extreme flexibility satisfying the most varied needs of its customers, the Think Plastic Group offers a complete support from the co-design and product engineering to the construction of molds and production lines up to molding, assembly and sales packaging of the finished product.

La capacità di proporre al mercato ogni giorno qualcosa di innovativo è la strategia vincente di Werkcam Srl, nata dall'acquisizione di Vorwerk Folletto Manufacturing che con la propria specializzazione nell'assemblaggio tecnico di accessori per l'industria dell'elettrodomestico unita all'esperienza di Caminada Srl nello stampaggio ad iniezione di tecnopolimeri nonché dall'ultima nata Plastikcam east Doo (Serbia) completano un tritico ideale controllato da Think plastic Srl, azienda Holding di proprietà della famiglia Caminada. In grado di operare con estrema flessibilità soddisfacendo le esigenze più svariate della propria clientela il Gruppo Think plastic offre al settore dell'elettrodomestico il supporto completo dal co-design all'engineering del prodotto per proseguire con la costruzione di stampi e linee di produzione fino allo stampaggio, assemblaggio e packaging di vendita del prodotto finito.

associations

associazioni



**CENTRO
ITALIANO
SMALTI
PORCELLANATI**

Centro Italiano Smalti Porcellanati

Viale Vincenzo Lancetti 43 - 20158 Milano
Tel. + (39) 02 32 64 283
Email: cisp@cisp.it
Web: www.cisp.it

C.I.S.P. - the Italian Porcelain Enamel Center - is a non-profit organization set up in 1958. In almost 60 years of activity, the Centre has strengthened its purpose of safeguarding and promoting Porcelain Enamel. Due to the prominence of the Italian Household Appliances sector, the Italian porcelain enamel market is one of the most important world-wide. Promoting initiatives and the exchange of technical expertise, C.I.S.P. has become a reliable point of reference for the operators in the sector. Many things have changed since 1958: production techniques, markets and trends. C.I.S.P. provides its members with the technical information to both understand and anticipate future developments.

automatic systems

sistemi automatici



CM EVOLUTION

C.M Evolution s.r.l.

Via Gianfranco Miglio, 4/6 - 20833 Giussano (MB)
Tel. +39 03621400900
E-mail: info@cmevolutionsrl.com
Web: www.cmevolutionsrl.com

CM Evolution is a new company with the aim to continue Corno Marco Italia activity, through the know-how and the experience acquired in more than 65 years in dies and systems. The plant, with a roofed area of 5700 smq, 4700 of which dedicated to production, can guarantee the manufacturing of production lines of any dimensions. The systems division is responsible for designing and manufacturing special machines, presses and forming & assembly lines, Semi-Automatic lines, Fully Automated Systems and Plants for sheet metal working in particular for the appliance sector but not only. There are several assembly techniques using welding stations, robotic cells, machining centers, including stapling, clinching, rivets and bolts, and so on. Dedicated assembly stations, as well as sub-groups of vehicles, electrical cabinets, shelves and doors for homes and artifacts made of stamped sheet metal in general.



DEMAK s.r.l.

Strada del Cascinotto 163 - 10156 Torino
Tel. +39 011 2239876 - Fax +39 011 2239896
E-mail: sales@demak.it
Web: www.demakgroup.com

Since the early eighties Demak have been producing atm pressure and vacuum dispensing equipment for the meter-mix of epoxy, polyurethane, silicone, polybutadienic resins. These kinds of resins are suitable for potting and encapsulating, vacuum casting, gluing and bonding, gasketing and coating of industrial components. The use of resins, to improve reliability and performances of electro-mechanic and electronic components, is well-known and such applications are constantly growing and developing.

The Demak Group is a reliable partner in offering standard as well as tailor-made solutions to face such production requirements at the highest quality level. Available in our wide range are stand-alone units and XYZ robots up to fully automatic lines capable of meeting any production needs. The main competitive advantage of the Demak Group is the combination of mechanical and chemical know-how. Since the Group produces PU and Epoxy resins too, Demak is able to support at 360° any customer in any resin dispensing project. A proper understanding of the resins behaviors is crucial to provide the right process solution.

burners bruciatori



A.R.C. s.r.l.

Via Arzari, 6 - 35011 Campodarsego (PD)
Tel. +39 049/5565982 - Fax +39 049/9201291
E-mail: info@arc-gas.it
Web: <http://www.arc-gas.it>

Founded in 1981 ARC S.r.l., based in Campodarsego (PD), is European leader in gas burner production and globally supports the rapidly growing needs of the household appliances and catering equipment industry. ARC supplies all the major manufacturers of gas household appliances and professional catering equipment in Europe and worldwide, with a full range of burners (power from 1,0 to 50,0 KW). More than 35 years of activity grant the widest know how in the planning, production and application of gas burners. In June 2016, Sabaf acquired 70% of the company's capital.

Fondata nel 1981 e leader in Europa nella produzione di bruciatori per la cottura professionale con sede in Campodarsego (PD) ARC s.r.l. supporta a livello globale le esigenze in rapida crescita del settore degli elettrodomestici e delle attrezzature per la ristorazione. ARC fornisce i principali produttori di elettrodomestici a gas e attrezzature per la ristorazione professionale in Europa e nel mondo, con una gamma completa di bruciatori (potenza da 1,0 a 50,0 KW). Più di 35 anni di attività le garantiscono il più ampio know-how nella progettazione, produzione e applicazione di bruciatori a gas ad uso professionale. Nel giugno 2016 Sabaf ha acquisito il 70% del capitale della società.



Defendi Italy s.r.l.

Via Direttissima del Conero, 29
60021 Camerano (AN) - Italy
Tel. +39 071 73941 - Fax +39 071 731929
E-mail: info@defendi.com
Web: www.defendi.com

Worldwide leader in designing and manufacturing gas components for cooking appliances, we provide a full range of gas burners, electronics and e-Gas solutions. Cutting-edge technology and the best made in Italy design make us a key partner for customization and co-design projects. More than 60 years of know-how to guarantee unsurpassed performances in terms of efficiency, reliability and design.



Flam Gas s.r.l.

Offices & Warehouse: Via G. Mazzini, 81/b
33080 Fiume Veneto (PN) - Italy
Headquarters: Via A. Malignani, 14
33080 Fiume Veneto (PN) - Italy
Building #2: Via A. Malignani, 18/a
33080 Fiume Veneto (PN) - Italy
Tel. +39 0434959122 - Fax +39 0434959559
Email: info@flamgas.com
Web: www.flamgas.com

Since 1968 Flam Gas designs, projects and manufacture gas burners for household and catering equipment purpose. Flam Gas is then able to follow the customer a complete study, design, development, testing, certification and entry into production of a finished product. Today can offer more than 900 different burners to be applied for many different purposes made of aluminized iron, stainless steel or other materials.



Sabaf spa

Via dei Carpini, 1 - 25035 Ospitaletto BS
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E-mail: sabaf@sabaf.it
Web: www.sabaf.it

Sabaf S.p.A. is a company that produces components for household cooking appliances. Founded in 1950, today it has about 550 employees and the Group of the same name has over 1,000 employees and nine production sites distributed between Italy, Poland, Brazil, Turkey and China. The production includes taps, thermostats and burners for gas appliances. The company invests about 3% of its annual turnover in research and development. The design and development of new products complies with the need to create increasingly safer components that permit to reduce atmospheric pollution and to save energy both during the production and the use by the final user. Characterized by a strong vertical integration, the Company also manufactures the machinery necessary to produce and assemble its products, thus obtaining maximum optimization in both processes. Sabaf has been listed on the Milan Stock Exchange since 1998 and since 2001 has been in the High Performance Equities Segment (STAR).

Sabaf S.p.A. è un'azienda produttrice di componenti per apparecchi domestici per la cottura a gas. Fondata nel 1950, conta oggi circa 550 dipendenti e l'omonimo Gruppo conta oltre 1.000 dipendenti e nove sedi produttive distribuite tra Italia, Polonia, Brasile, Turchia e Cina. Sabaf S.p.A. produce rubinetti, termostati e bruciatori per apparecchi per la cottura a gas. L'azienda investe circa il 3% del suo fatturato annuo in ricerca e sviluppo. La progettazione e lo sviluppo di nuovi prodotti è dettato dall'esigenza di creare componenti sempre più sicuri e che, sia in fase di produzione che di utilizzo da parte dell'utente finale, permettano di ridurre l'inquinamento atmosferico e di massimizzare il risparmio di risorse energetiche. Caratterizzata da una forte integrazione verticale, l'azienda produce internamente anche i macchinari necessari alla lavorazione e all'assemblaggio dei propri prodotti, ottenendo così la massima ottimizzazione in entrambi i processi. Dal 1998 Sabaf è quotata alla Borsa di Milano e dal 2001 è entrata a far parte del Segmento Titoli con Alti Requisiti (STAR).



Somipress s.r.l.

Via S. Scandalli, 4 - 60022 CastelFidardo (AN)
Tel. +39 0717820410 - Fax +39 0717820049
E-mail: somipress@somipress.com
Web: www.somipress.com

SOMIPRESS Srl was established in 1972 and has always been working in the field of aluminum die-casting. SOMIPRESS supplies high-quality aluminum die-castings to the Automotive and Household appliance Industries and is also able to carry out surface treatments, mechanical machining and assembly operations - equipped with free-pass certification to the customer's assembly lines. SOMIPRESS domestic gas burners come in a variety of models that can comply with different standards (European, American, Chinese) and are distinguished by superior performances and an exclusive design. The last burners' generation just developed - SERIES II HIGH EFFICIENCY - offer a higher efficiency and a lower gas consumption.



Société Nouvelle Sourdillon

8 Allée de la Robinetterie - 37250 Veigne (TOURS)
Office: +33 2 47 34 32 28 - Mobile: +33 687395671
E-mail: contact@sourdillon.eu
Web: www.sourdillon.eu

Established in 1919, Sourdillon SAS, is producing gas cooking components exporting all around Europe and all over the world in the house appliance sector.

A large range of high quality Aluminum Safety valves for domestic & professional cooking. High efficiency commodity and specialty Gas Burners, Complete gas tubing assemblies/modules. Customized High precision machined components made from aluminum extrusion.

SOURDILLON quality and production process is ISO9001 certified and its products are compliant to gas regulations CE, CSA/UL, AGA, SEC and ANSI.

SOURDILLON Gas Development Engineering Laboratory: Provides laboratory-test service for all gas cooking appliances. Gas: Hobs, Freestanding cookers, Ovens and Grills. Design of customized burners for all gas types according to customer's needs.

cables and wires. electric

cavi - conduttori cordoni di alimentazione



Comestero Sistemi s.p.a.

Via Bolzano, 1/E - 20871 Vimercate (MB)
Tel. +39 - 039.625091 - Fax +39 - 039.667479
E-mail: info@comestero.com
Web: www.comestero.com
"A company of Gruppo Comestero Sistemi"

Gruppo Comestero" is an international company that, since 40 years, is involved in co-engineering, production and sale of the best electromechanical components and also in the development of innovative technical solutions for the industry.

Gruppo Comestero è una realtà internazionale che, da oltre 40 anni, si occupa di co-progettazione, produzione e vendita delle migliori componenti elettromeccaniche e dello sviluppo di soluzioni tecniche innovative per l'industria.

- Project & Design (Feasibility study, FEM analysis,...)
- AC/DC Fans & Motors (Axial fans, Shaded Pole Motors, EC Motors, Heaters with fan)
- EMI/RFI filters (inlet, Boxes, Home appliance, 3ph, Customised)
- Assembly & Harnesses
- Power Supply (Worldwid powercords, plugs and sockets)
- Protection (Fuse, Fuse-holder, Contactors, Circuit breaker)
- Solenoids (Open Frame, Tubular, Customized)



ELETTROMETAL

Eldecom Dedicated Components s.r.l.

Via Cavallotti, 5 - 20853 Biassono (MB) - Italy
Tel. +39 0392752754 - Fax +39 0392752758
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Web: www.eldecom.com

ELDECOM Dedicated Components srl produces and sells signal lamps, harnesses, probes and other dedicated items and it is owner of ELETTROMETAL trade mark, present on the market for more than 30 years.

Eldecom's main field is the one of small and middle-size electro-household appliances but our products are suitable for applications in industrial equipments, civil electro-technics, after market for auto-motive and more. Our strength is the great attention to customers' needs, quick reactivity and reliability both for big quantities that for small ones.



Eurocablaggi s.r.l.

Sede Legale Uffici e Stabilimento:
Via delle Industrie, 7
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Tel. +39 042991270 - Fax +39 042991087
E-mail: info@eurocablaggi.it
Web: www.eurocablaggi.it

Eurocablaggi has been working for almost 40 years in the field of power supply and patch cords with moulded plugs/sockets production and wiring in general. Our items have all the European quality marks, in addition to the Australian, Argentine and UK. Eurocablaggi is certified ISO 9001:2015 and ISO 14001:2015



Lomax

Viale Europa, 1
21010 Golasecca (VA)
Tel. +39 0331958144 - Fax + 39 0331959113
E-mail: lomax@lomax.it
Web: www.lomax.it

Formed in 1972, is a specialized manufacturer of non rewirable molded plug and cordset assemblies. The modern in-house tooling department and the high know-how, gives LOMAX the opportunity to build special tools and moulds to meet customer's requirements Full quality controlled process allow LOMAX to supply customized cords and assemblies with worldwide approved plugs



New Supply Group s.r.l.

Via A. Meucci, 5 - 31050 - Ponzano Veneto (Treviso)
Tel. +39 0422 962 972 - Fax +39 0422 967 452
E-mail: info@newsupplygroup.com
Web: www.newsupplygroup.com

New Supply Group srl provides its customers for over 20 years industrial electrical wiring, electrical and electromechanical assemblies with the aid of automatic machines and specialized operators. The sectors we work for are electric motors, coffee machines, washing machines, air generators, ovens and others...



Patelec Group

PATELEC GROUP has over 50 years of technical experience in cords and cables production with worldwide homologations for industrial, professional and consumer applications. Internal vertical production, from copper and cables to cords, enables us to serve the market with the greatest flexibility in terms of batch sizes per plug and cable type, thanks to a highly controlled production process. Our range includes customized harnesses, low voltage cables, cords and cable assemblies in order to offer to our customers high quality complete connection systems.

PATELEC CORDS AND CABLES S.R.L.

15020 Cerrina (AL) - Via Nazionale, 6 - Italy
Tel. +39 0142 950211
Fax +39 0142 9502
Email: pi@patelec.eu

PATELEC S.R.L.

15020 Cerrina (AL) - Via Nazionale, 6 - Italy
Tel. +39 0142 950212
Fax +39 0142 9502
Email: pi@patelec.eu

Patelec Elpena Sp. z o.o.

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Tel. +48 76 722 51 11
Fax +48767225113
Email: pe@patelec.eu

PATELEC Ningbo Electric, Ltd

百得利 (宁波) 电气有限公司
Hehuaqiao Industrial Zone, Yunlong Town Ningbo - China (Zip Code: 315135)
浙江省宁波市鄞州区云龙镇荷花桥工业区 (邮编: 315135)
Tel.: +86 574 88060100
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Email: ningbo@patelec.eu



YOUR CONNECTIONS | OUR SOLUTIONS

Realcable s.r.l.

Via Orefici Michelin, 7 - 33170 Pordenone - Italy
Tel. +39 0434 573630 - Fax +39 0434 573646
E-mail: info@realcable.it
Web: www.realcable.it

The **Realcable Group** produces for more than 30 years wiring harnesses, electromechanical assemblies and electrical command panels for all industries. Further, the Realcable Group owns the brand REALUCE, leader in the production of professional lighting solutions for indoor and outdoor use. Quality, reliability and competence contribute to the excellent image and reputation of the **Realcable Group** on the current international market.

UNI EN ISO 9001:2015, UL 817
e UL CSA-C22.2 No. 21,
ISO/TS 22163:2017

Il **Gruppo Realcable**, da oltre 30 anni, produce cablaggi elettrici, assemblaggi elettromeccanici e quadri elettrici per ogni settore industriale, inoltre è proprietario del marchio REALUCE, affermato brand di produzione di soluzioni illuminotecniche professionali per interni ed esterni. Qualità, affidabilità e competenza contribuiscono a sviluppare una immagine di eccellenza che il **Gruppo Realcable** ha oggi sul mercato.

UNI EN ISO 9001:2015, UL 817
e UL CSA-C22.2 No. 21,
ISO/TS 22163:2017



Satiplugs s.r.l

Via L. Capè n.9 Z.I. LA QUADRA
21018 Sesto Calende (VA)
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E-mail: info@satiplugs.it
Web: www.satiplugs.it

A specialized team, with 40 years of experience, from always has focused his interest in the production of electric cables complete with plugs. The important know-how allows us to produce high quality plugs giving excellent safety to the finished product guaranteed by major European and International brands. To strengthen a business relationship between customer and supplier, SATIPLUGS, offers a service to it's customers, adding, special Mechanical and Electrical components, to it's products, in synergy with the sectors of the societies from she provided. SATIPLUGS uses exclusively national materials for the production of it's products, making its team proud of the "Made in Italy".



Ti.Emme.Ti s.r.l.

Via Guido Rossa, 32 - 20066 Melzo (MI)
Tel.: +39 0295359080 - Fax: +39 0295580055
E-mail: info@tiemmetisrl.it
Web: www.tiemmetisrl.it

- **Monotubes, steam tubes and components**
Monotubi, tubi e componenti trasporto vapore
- **Full system of quick connection between steam generator and iron/steam (patented)**
Sistema completo di connessione rapida generatore-ferro/accessori (brevetto)
- **Monotubes with overmoulded cable holders (patented)**
Monotubi con passacavi costampati (brevetto)
- **Braided textile cables**
Cavi tessili rivestiti

capacitors and suppression filters condensatori e filtri antidisturbo



Comestero Sistemi s.p.A.

Via Bolzano, 1/E - 20871 Vimercate (MB)
Tel. +39 - 039.625091 - Fax +39 - 039.667479
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"A company of Gruppo Comestero Sistemi"

Gruppo Comestero" is an international company that, since 40 years, is involved in co-engineering, production and sale of the best electromechanical components and also in the development of innovative technical solutions for the industry.

Gruppo Comestero è una realtà internazionale che, da oltre 40 anni, si occupa di co-progettazione, produzione e vendita delle migliori componenti elettromeccaniche e dello sviluppo di soluzioni tecniche innovative per l'industria.

- Project & Design (Feasibility study, FEM analysis,..)
- AC/DC Fans & Motors (Axial fans, Shaded Pole Motors, EC Motors, Heaters with fan)
- EMI/RFI filters (inlet, Boxes, Home appliance, 3ph, Customised)
- Assembly & Harnesses
- Power Supply (Worldwidl powercords, plugs and sockets)
- Protection (Fuse, Fuse-holder, Contactors, Circuit breaker)
- Solenoids (Open Frame, Tubular, Customized)



commutators
collettori

cagnoni

Cagnoni s.r.l.

Via O. Fallaci 12/14 - 60027 Osimo (AN) - Italy
Tel. +39 0717231594 - Fax +39 0717231595
E-mail: info@cagnoni.com
Web: www.cagnoni.com

Cagnoni specialises in parts stamped from sheet metal and in progressive or transfer dies, using the most modern machinery which ensures absolute precision and cost containment. Design, prototyping and industrialisation of the product are done in collaboration with the customer, using three-dimensional CAD-CAM platforms.



Powers World Motor

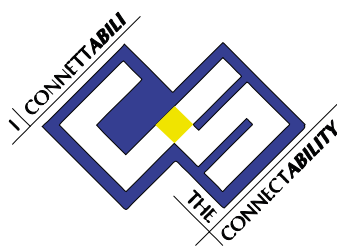
Sgm Technical Products Italia s.r.l.

Via 1° Maggio, 2 - 23841 Annone Brianza (LC)
Tel. +39 0341575121 - Fax +39 0341261347
E-mail: mario.giussani@sgm-technical.it

LIFENG CO., LTD.
COLLETTORI PER MOTORI ELETTRICI

The products involve hook-type, groove-type and flat type commutators and collector rings. Which are widely used in power tools, automobiles, motorcycles, household appliances and other high-speed DC motors.

connectors
contatti e connessioni



CS s.r.l.

Via Como, 11 - 20063 Cernusco sul Naviglio (MI)
Tel. +39 0292107404 - Fax +39 0292100217
E-mail: info@cconnectors.com
Web: www.cconnectors.com

CS Srl è specializzata da oltre 35 anni nella produzione di connettori in materiale termoplastico per il mercato elettrico ed elettronico. I connettori CS sono omologati ed utilizzati dalla maggioranza dei produttori di elettrodomestici italiani ed esteri. L'azienda ha una filiale commerciale negli USA (CS Colombo USA) e distributori ed agenti su tutti i principali mercati mondiali (Cina, India, Brasile, Messico, Turchia...).



Korner s.r.l.

V.le Alessandro Volta, 12 - 20090 Cusago (MI)
Tel. +39 0290119743 - Fax +39 0290119683
E-mail: ok@korner.it
Web: www.korner.it

Korner produces terminal blocks and electrical connectors since 1951. Its products are cULus, VDE and IMQ certified. The complete range of Korner's production with data-sheets is available on the web site www.korner.it.



Mikropla s.r.l.

Via G. Pascoli, 36 - 60044 Fabriano (AN)
Tel. +39 0732 4039 - Fax +39 0732 625955
E-mail: info@mikropla.com
Web: www.mikropla.com



Mikropla produces solutions for connection systems, from the quick-connect terminals to the Wire-to-Wire, Wire-to-Board and Wire-to-Edge connection range. From 1968 Mikropla excels in terms of performance and economy of operation, our customers are particularly impressed by our Consistent product quality, our Ability to handle every customer's urgency, our Products' high reliability and long service life. As provider of different connection solutions, you will be sure to find us active throughout the world.



Officina Meccanica Rossoni Maurizio

Via Margherita Viganò De Vizzi, 64/a
20092 Cinisello Balsamo (MI)
Tel. +39 026128562 - Fax +39 0266015240
E-mail: info@rossonimaurizio.com
Web: www.rossonimaurizio.com

The Company OFFICINA MECCANICA ROSSONI MAURIZIO is specialized in the production of:

- **SMALL INDUSTRIAL METAL COMPONENTS**, obtained by shearing operation, also in stainless steel
- **CABLE-TERMINALS FOR ELECTRICAL CONNECTIONS**, standard/custom, in stainless steel AISI 304/316 or nickel plated and mainly custom, in copper and brass
- **FASTON IN STAINLESS STEEL**, in the following sizes: 6,3 x 0,8 : 0,5-1 * 1-2,5 * 4-6mmq

In addition to well-stocked warehouse, the Company is also prepared to afford custom projects.

dies and cool forming
stampi e stampaggio a freddo



Bora s.r.l.

Via dell'Industria 3 - Frazione Moie
60030 Maiolati Spontini (AN)
Tel. +39 073170671 - Fax +39 0731701870
E-mail: info@bora-italy.eu
Web: www.bora-italy.eu

Bora designs and manufactures, since 1975, dies for metal stamping and also offers to the market high-quality stamped parts. Bora mainly serves the household appliances and the automotive industries.

Our main activities:

- Dies design and manufacturing
- Sheet metal pressing and forming
- Assembly operations

cagnoni

Cagnoni s.r.l.

Via O. Fallaci 14/16 - 60027 Osimo (AN) - Italy
Tel. +39 0717231594 - Fax +39 0717231595
E-mail: info@cagnoni.com
Web: www.cagnoni.com

Cagnoni specialises in parts stamped from sheet metal and in progressive or transfer dies, using the most modern machinery which ensures absolute precision and cost containment. Design, prototyping and industrialisation of the product are done in collaboration with the customer, using three-dimensional CAD-CAM platforms.



CASATI s.r.l.

Via dei Gelsi, 64 - 20046 Biassono (MI)
Tel. +39 0392494295 - Fax +39 039490630
E-mail: info@casatistampi.it
Web: www.casatistampi.it

Specialist in cold forming of sheet metal, making both Single and assembled components, spare parts and sub-systems

R&D -PE:

- Research & Development;
- Process engineering interactive;
- Co-design with our customer.

CONSTRUCTION:

- Dies for Blanking, Bending, Drawing ;
- Transfer Dies;
- Progressive Dies;
- Hydraulic and Pneumatic equipment.

PRODUCTION:

- Blanking with mechanical presses to 1000 ton.;
- Bending, Drawing, Forming of bonded material;
- Painting, Heat and Galvano treatments.

ASSEMBLING:

- Welding Mig, Tig, Resistance, Project and Spot;
- Assembling with automatic Robots.



C.M Evolution s.r.l.

Via Gianfranco Miglio, 4/6 - 20833 Giussano (MB)
Tel. +39 03621400900
E-mail: info@cmevolutionsrl.com
Web: www.cmevolutionsrl.com

CM Evolution has continued the activity of Corno Marco Italia, with a know-how acquired in more than 65 years in dies and systems design and manufacture.

The company has several 3D CAD/CAM/CAE stations and CNC machines intranet connected, including high speed milling machines, 3D CMM's and mechanical/hydraulic presses for testing, with cranes up to 20 tons. The Dies Division supplies many sectors with dies of any size and type, as manual, transfer, progressive and programmable, dies for drawing/deep drawing, forming, punching, bending, trimming, cutting and so on, to process any sheet metal as carbon, galvanized and stainless steel, steel to be enameled, pre-painted, pre-coated and high-strength steel, aluminum, etc. The Dies Division also specializes in dies for high precision and mechanical components as well as thick parts and parts requiring excellent aesthetic appearance.

electro-magnetic pumps
pompe elettromagnetiche



CEME s.p.a.

Viale dell' Industria, 5 - 27020 - Trivulzio (PV), Italy
Tel. +39 0382 18 051
E-mail: info@cemegroup.com

CEME, solenoid pumps and solenoid valves

Solenoid pumps, solenoid valves, pressure switches, flow meters for a perfect fluid control

Established in 1974, CEME is now a landmark for solenoid pumps and solenoid valves production in Italy and throughout the world. Over the years, the company has diversified its product range and their applications enriching its array of solenoid pumps, solenoid valves, pressure switches, flow meters and other components to properly control the passage of any type of fluid: water, gas, steam, air. CEME is renowned for its technical engineering know-how, quality, flexibility and for the distinctive ability to develop innovative solutions for customers on the Italian and international markets. Technology needs control.



Meccanotecnica Umbra

a Story of Excellence

Meccanotecnica Umbra s.p.a.

Via G. Agnelli, 7 - 06042 Campello sul Clitunno (PG)
Tel. +39 07432791
E-mail: italy@mtu-group.com
Web: www.meccanotecnica.it

Company Profile:

Established in 1966, quality and environment systems, ISO 14001, EMAS, ISO 9001, IATF 16949, OHSAS 18007. Group Sales turnover 83 Ml euro in more than 50 countries. 780 employees of which 70 in R&D and technical depts. Five production plants in the world, Italy, Brazil, China, Sweden, USA-Mexico, India, Canada.

Products Handled/Business description:

Design and manufacturing of sealing systems for rotating shafts of engines cooling pumps, dishwasher circulator pumps, pumps and mixers for food industry, chemical, paper, mining, pharmaceutical industry, renewable energy.

enameled iron and cast iron pan support grids
griglie smaltate piani cottura



COSMA s.r.l.

Via Laviano, 8 - Z.I.P.R. - 33078 San Vito al Tagliamento (PN)
Tel. +39 0434845811
E-mail: infocom@cosmagroup.com
Web: www.cosmagroup.com

Founded in 1980 Cosma Srl is currently one of the biggest European players in the manufacturing field of enameled iron and cast iron pan support grids.

With both headquarters and production plant in San Vito al Tagliamento, Cosma Srl is currently employing 70 people on a production area of 7200 sq. m. in which the most updated manufacturing techniques and processes are applied.

Our adjacent offices allow constant and in time monitoring of each production phase by the purchasing, quality and sales team. Cosma Srl is currently the only Italian company to supply iron, cast iron and chromium-plated grids at the highest quality levels.

Cosma Srl stands at the heart of Cosma Group, a commercial network covering the most strategic areas of the world (Italy - Romania - China), a group constantly invigorated by technological research, continuous innovation and important commercial and industrial investments. You can visit our corporate website for further reference: www.cosmagroup.com



TB Engineering s.r.l.

Via Cesarea 2/36 - 16121 Genova
Tel. +39 0108686114
E-mail: info@tb-engineering.com
Web: www.tb-engineering.com

Established in 2004, from its headquarter in Genova (Italy), **TB Engineering** supports manufacturers to source products from the "global market" aiming to achieve top quality products and worldwide efficiencies.

Among its wide range of products **TB Engineering** offers the best quality of customized cast iron grills for cookers following all production phases from raw material selection up to the final product.

All products are developed and designed on the basis of customers' requirements and specifications and can be delivered both from our warehouse in Italy or in full containers directly to the customer facility.

TB Engineering extensive commercial, manufacturing and internationalization business expertise, in-depth understanding of industrial plant processes and excellent problem-solving capabilities will prove to find solutions for both large industrial corporations as well as for small and medium-sized businesses.

TB Engineering can also provide its clients with an extensive range of machinery and manufacturing equipment specific for a huge variety of industrial sectors.

filters filtri



Sifim s.r.l.

via Ignazio Silone, 3 - 60035 Jesi (AN)
Tel. +39 073160401 - Fax +39 0731614095
E-mail: sifim@sifim.it
Web: www.sifim.it

Sifim is specialized in production of metal filters, expanded metal and articles for lighting and air conditioning. It creates infinite models of filters of several forms using perforated nets, expanded metal or metal strips. Essential is the work of research, testing and certification carried out from the company. It takes care of the service giving the customers project, design, competence and cooperation.

fuses fusibili



Omega Fusibili s.p.A.

Via Edison, 10/12 - 20090 Assago (MI)
Tel. +39 02488481 - Fax +39 024882522
E-mail: omega@omegafusibili.it
Web: www.omegafusibili.it

Omega Fusibili è da anni un'azienda leader nella produzione e distribuzione di:

- Fusibili cilindrici, da circuito stampato e termici
- Portafusibili
- Induttanze
- Supercondensatori
- Morsetti
- Interruttori, pulsanti e indicatori luminosi
- Sensori
- Spine e prese IEC
- Connettori e cavi d'alimentazione
- Connettori per Led
- Batterie e portabatterie
- Ventole AC e DC
- Ventole elettroniche EC
- PLC e dispositivi di controllo
- Illuminazione Led industriale
- Pulsanti uomo morto
- Laser scanner

glass oven doors and cooking tops lavorazione vetro piani cottura



Cosma Glass

Bld. Bucuresti nr. 44 - 430013 Baia Mare, Romania
Tel. +40 262 417755 - Fax +40 262 221071
Web: www.cosmagroup.com

Cosma Glass was founded in 2013 with the aim of diversifying the product offer, exploiting the Group's thirty years' experience in the field of kitchen components. Cosma Glass produces glass oven doors and cooking tops following the latest design trends. Currently employing 30 people on a 5000 sq. m area, Cosma Glass is equipped with brand new machinery with the utmost updated technology. Being flat glass for household appliances its core business, Cosma Glass operates in close collaboration with the biggest household appliances manufacturers in order to design and produce according to the highest levels of quality and safety. Customization and precision are the strengths of Cosma Glass, which invested since the beginning in technology and innovation as the new application of a system for centering the glass sheet for the serigraphy process clearly demonstrates.

handles and knobs for household appliance sector maniglie e componenti estetici per elettrodomestici



Paradisi

Paradisi s.r.l.

Via G. di Vittorio, 15 - 60035 Jesi (AN)
Tel. +390731213594 - Fax +390731213658
E-mail: info@paradisi.it
Web: www.paradisi.it

Paradisi srl is a producer of turning precision components as well as handles, knobs and accessories for the domestic appliance sector.

The Company works hand in hand with its clients on drawings, designs and samples in order to guarantee the best end product.

Thanks to its qualified personnel (42 employers) and to its high-performance machines (88 automatic lathes), the company guarantees great flexibility and it's able to satisfy requests from the automotive, electro-mechanics, automation, household appliances, furniture, nautical and dental industries...

Paradisi is ISO9001, ISO14001, OHSAS18001, IATF16949 certified company, EMAS registered and a certified B-Corporation®.

Werkcam

Excellence in Plastic and
Technical Manufacturing

Werkcam s.r.l. a socio unico Società soggetta a direzione e coordinamento da parte di Think Plastic S.r.l.

Via G. Garibaldi 27 - 20862 - Arcore MB - Italy
Tel. +39 039 62731 - Fax +39 039 6273210
E-mail: sales@werkcam.eu
Web: www.werkcam.eu

The winning strategy of Werkcam Srl is the ability to offer something innovative to the market every day. Born from the acquisition of Vorwerk Folletto Manufacturing with its specialization in the assembly of technical accessories for the household appliance industry combined with the experience in the injection molding of technopolymers of Caminada Srl as well as the new entry Plastikcam east Doo (Serbia) complete an ideal triangle controlled by Think Plastic Srl, a holding company owned by the Caminada family. Able to operate with extreme flexibility satisfying the most varied needs of its customers, the Think Plastic Group offers a complete support from the co-design and product engineering to the construction of molds and production lines up to molding, assembly and sales packaging of the finished product.

La capacità di proporre al mercato ogni giorno qualcosa di innovativo è la strategia vincente di Werkcam Srl, nata dall'acquisizione di Vorwerk Folletto Manufacturing che con la propria specializzazione nell'assemblaggio tecnico di accessori per l'industria dell'elettrodomestico unita all'esperienza di Caminada Srl nello stampaggio ad iniezione di tecnopolimeri nonché dall'ultima nata Plastikcam east Doo (Serbia) completano un tritico ideale controllato da Think plastic Srl, azienda Holding di proprietà della famiglia Caminada. In grado di operare con estrema flessibilità soddisfacendo le esigenze più svariate della propria clientela il Gruppo Think plastic offre al settore dell'elettrodomestico il supporto completo dal co-design all'engineering del prodotto per proseguire con la costruzione di stampi e linee di produzione fino allo stampaggio, assemblaggio e packaging di vendita del prodotto finito.

heating elements resistenze elettriche



ALPER S.r.l. Società con socio unico

Via S. Giovanni Bosco, 50 - 36022 Cassola (VI) - Italy
E-mail: info@alper.it
Web: www.alper.it

Alper is European leader manufacturer of **ultraflat PET heaters**. The silver + carbon technology allows to have high performance and best efficiency heating elements. The carbon mixture permits to benefit of a PTC effect that optimises the temperature equilibrium between the ambient and the heated surface.

Just as an example these technology is very well appreciated as coffee cup heaters, yogurt makers and in all the applications where a very well distributed temperature lower than 90° C is requested.

The range of **ultraflat** heaters of Alper is recently enriched by the **SILICON heaters**, suitable for high temperature performances until about 200° C.

All Alper heaters can be produced with or without self-adhesive, with temperature limiters and sensors, various layers of insulation, ...

Alper: the flexible and tailor made ultraflat heaters.



Italres s.r.l.

Via C. Monteverdi 57 - 50019 Sesto Fiorentino (FI)
Tel. +39 055452322 - Fax +39 055452271
E-mail: info@italres.com
Web: www.italres.com

Manufacture electrical tubular heating elements for household and professional appliances

Industria residenze elettriche corazzate per piccoli e grandi elettrodomestici

- **ovens/forni**
- **grill/bistecchiere**
- **washing machines/lavatrici**
- **coffee machines/macchine da caffè**
- **steam machines/macchine vapore**
- **dishwashers/lavastoviglie**

Design and production on request
Studio e realizzazioni personalizzate



REDIC S.r.l. - Resistenze Elettriche Corazzate

Via Don Lorenzo Milani, 5 - 20025 Legnano (MI) - Italia
Tel. (+39) 029623320 - Fax (+39) 029625502
E-mail: marketing@redic.it; commerciale@redic.it
Web: www.redic.it

From driers to forced air circulation applications, and from antifreeze to anticondensation systems and industrial boilers and electroplating baths—you should choose each type of electrical resistances based not just on the temperature you need to reach, but also on the basis of physical and chemical compatibility with the fluid to be treated, whether it be air, gas, public water, demineralized water, oils, hydrocarbons, or chemical solutions with a precise composition, acidity or alkalinity.

That is why Redic offers a wide range of products, spanning from “common” metal heaters—such as carbon steel, stainless steel (AISI304, 321, 316), copper, titanium and Incoloy—and heaters specifically for the chemical and galvanic treatment sector with casings made of pyrex, porcelain, carbon, teflon, etc. (for the tank edge or to be completely immersed in the center of the tank), monotubes with removable and replaceable thermal cores, which solves the costly problem of having to empty the tanks when replacing the heater.

The traditional care and reliability of Redic's Made in Italy product has made our company famous among our customers, who now consider us an irreplaceable partner rather than a simple “supplier”.



Reco Group

Heating Elements & Systems

Via Pinerolo, 20/2 - 10060 Frossasco (TO) - Italy
Tel. +39 0121352977 - 3 linee r.a.
Fax +39 0121352968
E-mail: reco@recogroup.it - reart@recogroup.it
Web: www.recogroup.it

Reco Group, a family company, from father to son, from reco to reart, has attained world leadership in design and production of sheathed heating elements for domestic and industrial sectors thanks to 50 years of experience. A high level of specialization and quality enable the group to satisfy any customer requirements with “tailor made” projects and products. **Reco**, taking profit from its technological innovation and its modern production of heating elements and thermostats for water heaters has reached a world wide market thanks to the satisfaction of customers. **Reart** was set up to support Reco production and thereby expand the group's potential. Reart offers innovative solutions through high quality products in the industrial sector manufacturing heating elements and systems.

BIELETRICA



Bieletrica

Via Averolda, 8/10 - 25039 Travagliato (BS)
Tel. +39 0306863803 - Fax +39 0306863808
E-mail: info@bielettrica.com
Web: www.bielettrica.com

PRODUZIONE RESISTENZE ELETTRICHE PER:

- **Asciugacapelli**
- **Termoventilatori**
- **Termoconvettori**
- **Tostapane, ecc.**

PROGETTAZIONI E REALIZZAZIONI SPECIALI



Thermowatt s.p.a.

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E-mail: info@thermowatt.com
Web: www.thermowatt.com

THERMOWATT, founded in '50s, is the Italian worldwide leading manufacturer of copper heating elements and thermostats. THERMOWATT is specialised in producing heating elements for electric water heaters, washing and drying machines, dishwashers, ovens and all household and professional appliances.

THERMOWATT produces mono and three-phase heating elements in copper, stainless steel, special alloysteel (chrome and nickel) and titanium, customized according to Client's needs. Thanks to the capability and skills of its sister company DhE, Thermowatt is now able to offer to its Clients an additional extended range of customized heating solutions for industrial and professional applications. THERMOWATT is certified by the major international institutes: ISO9001:2008, ISO14001:2004 and ISO18001:2007.

Quality Trade Marks: IMQ, VDE, UL, GOST.

With an annual production of more than 40 million pieces, THERMOWATT is the ideal partner of more than 250 electric appliance manufactures all over the world.





Zoppas Industries

Heating Element Technologies

Via Podgora, 26 - 31029 Vittorio Veneto (TV)
Tel. +39 04389101 - Fax +39 0438912272
E-mail: irca@zoppas.com
Web: www.zoppasindustries.com

Major and Small Domestic Appliances, Comfort Conditioning and Industrial Applications

Zoppas Industries Heating Element Technologies boast an experience of over 50 years in design and production of heating elements and systems, even completed with thermal controls for domestic and industrial applications. Thanks to its business units' high specialization in the different application areas from major to small domestic appliances and from comfort conditioning to the industrial market, Zoppas Industries Heating Element Technologies has solid competence and steady innovation in developing tubular heaters, cartridges and band heaters, etched foil, thick film, heating cables, stitched wire heating elements, finned aluminium heaters, functional assemblies, and electronic controls.

hinges cerniere



C.M.I. Cerniere Meccaniche Industriali S.r.l.

Via 2 Agosto 1980, 1/D - Località Crespellano
40053 Valsamoggia (BO)
Tel. +39 0516713411 - Fax +39 051969940
E-mail: info@cmi-hinges.com
Web: www.cmi-hinges.com

C.M.I. srl, works in mechanical hinges industry for household appliances and is from 30 years the point of technical reference for his national and international customers. We produce hinges for ovens and dishwashers, freestanding and built-in, with fixed or variable fulcrum and designing carefully the solution that best suits to customer's requirements. The technological innovation of our products enhances the appearance and function of hinge, and guarantees customer safety at the same time. Since 2015 CMI can also be considered as a metal stamping and tools maker supplier, having integrated both processes in the value stream. In July 2019 Sabaf Group acquired the control of the company. The acquisition of C.M.I. has an important strategic value because it allows the Group to become the world's leading manufacturer of hinges for appliances.

C.M.I. srl, opera nel settore delle cerniere meccaniche per elettrodomestici ed è da 30 anni il punto di riferimento tecnico per i suoi clienti nazionali e internazionali con la produzione di cerniere per forni e lavastoviglie, autoportanti e integrate, fulcro fisso e variabile e progettando attentamente la soluzione più adatta alle esigenze del cliente. L'innovazione tecnologica dei prodotti migliora l'aspetto e la funzione della cerniera e garantisce allo stesso tempo la sicurezza del cliente. Dal 2015 può considerarsi anche fornitore di stampi per metalli e produttori di utensili, avendo integrato entrambi i processi nel loro flusso di valore. A luglio 2019 il Gruppo Sabaf ha acquisito il controllo dell'azienda. L'acquisizione di C.M.I. ha un'importante valenza strategica perché permette al Gruppo di diventare il primo produttore mondiale di cerniere per elettrodomestici.



SABAF
GROUP

Faringosi-Hinges S.r.l.

Via A. De Gasperi, 92 - 20010 Bareggio (MI)
Tel. +39 0290279411 - Fax +39 0290279499
E-mail: info@faringosi-hinges.it
Web: <http://www.faringosi-hinges.it>

Faringosi-Hinges Srl, located in Bareggio, Milan province, designs and manufactures hinges for household appliances, making use of technological innovations constantly applied both during the study phase than the production to respond to the increasingly varied and demanding requests of the world market where its products find application. The products are mainly used on built-in ovens, free-standing kitchens and dishwashers.

Since 2000 is part of Sabaf Group. Consistently with the strategy adopted by the Parent Company, Faringosi is now strongly committed to product and process innovation, so that the superior performance of the new models can be combined with a greater level of automation of the production phases.

Faringosi-Hinges S.r.l., società di Bareggio, in provincia di Milano, progetta e produce cerniere per elettrodomestici, avvalendosi di innovazioni tecnologiche costantemente applicate sia in fase di studio che di realizzazione, per rispondere alle sempre più varie ed esigenti richieste del mercato mondiale ove trovano applicazione i suoi prodotti. I prodotti trovano principale applicazione su forni da incasso, cucine free-standing e lavastoviglie. È dal 2000 parte del Gruppo Sabaf. Coerentemente con la strategia adottata dalla Capogruppo, Faringosi è oggi fortemente impegnata nell'innovazione di prodotto e di processo, affinché le prestazioni superiori dei nuovi modelli si coniughino con un maggiore livello di automazione delle fasi di produzione.

igniters accenditori per cucine



Italquartz S.r.l.

Via del Colle, 101 - 50041 Calenzano (FI)
Tel. +39 0558825465 - Fax +39 0558825413
E-mail: info@italquartz.com
Web: www.italquartz.com

Production chains, electronic and piezoelectric igniters for:

- Kitchens - Gas Hobs
 - Boiler - stoves - Barbecues
- Production of accessories:
- Glow Plugs - High Voltage Cables - Knobs

industrial automation automazione industriale



AGE S.u.r.l.

Via dello Zerbo, 45 - 20090 Opera (MI)
Tel. 02 53031060 - Fax 02 53030453
E-mail: info@age-service.com
Web: www.age-service.com
Ref. Commerciale: Piero Arioli - Mob: +39 333.42.74.220 - piero.arioli@age-service.com

AGE is a young and dynamic commercial reality that provides customers only with the best innovative products offered by the market. A **better performance** also has a **lower environmental impact**, reducing **energy consumption** and improving the quality of waste deriving from production processes.

100% GREEN & RECYCLABLE INSULATOR PANELS

A new concept of insulators, low thickness to minimize the space needed, high performances, 100% green and recyclable to obtain a lower environmental impact, applicable to all the productive industrial sectors.

NANO-TECH COATINGS

The study of new coatings based on nanotechnological particles.

These coatings have both the function of improving the yield and the applicability of some natural materials, in order to make them more durable and long-lasting. This translates into the possibility of using natural materials and supports even where polymers and plastics were needed before.



Meccanica H7 S.r.l.

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63100 Ascoli Piceno
Tel. +39 0736811060
E-mail: info@meccanich7.it
Web: www.meccanich7.it

Meccanica H7, since 1980, has been designing and building prototypes, serial produced machines, special machines and complete plants for any industrial applications. We work using flexible solutions, combining working centre machines, positioning systems, assembly units and robotic cells. Our organization and our achieved know-how allow us to supply reliable and technologically advanced products; with our continuous investments in research, we develop new ideas and innovative solutions for any industrial field. We have customers from all over the world and from a wide range of industrial fields: food, packaging, white goods, automotive, hydraulic and industrial hose, timing belts, wheel tyres, medical devices, automotive glass, corrugated and ceramic. We cover the complete production cycle: engineering, designing, manufacturing, assembly, testing, installation and assistance.



MEKTECH S.r.l.

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Tel. +39 3621400900
E-mail: info@mektechalliance.com
Web: www.mektechalliance.com

Mektech is a global alliance between the companies Meccanica H7, Robotech Automazioni e C.M. Evolution. The company is active on a global level create a strength, whose result is much more that the mere sum of the single parts. Each company strongly believes in globalization and research, and focuses on solutions and process innovation in the production of metal parts with its R&D departments, staffed with skilled designers and engineers with specific experience in the sector, working towards a common goal. Robotics, automation, eidomatic, hydraulic, and more and more...The high level of integration means Mektech Global Alliance can meet its customers' demand with innovative technology and customized solutions including a finished turn-key product.

led technology

tecnologia led



Altec s.a.s.

Via I Maggio, n° 8 - 20873 Cavenago Brianza (MB)
Tel. + 39 029253688
E-mail: info@altecpcb.it
Web: www.altecpcb.it

Altec designs and manufactures printed circuits and wiring electromechanical since 1978. In these years we have gained a great experience in the production of aluminum printed circuits, ideal for the use of LEDs in every sector and with countless applications. Altec collaborates with customers from design up to realization of the products.

- Design and production of printed circuits
- Single-face, double-sided, multi-layer FR4 circuits
- Supply also of small series and samples
- Automatic assembly of SMD components
- Manual welding or in controlled ovens e semiautomatic
- Traditional assembly and wiring
- Electromechanical constructions

mechatronic

meccatronica



ELEMMASTER S.p.A.

Via García Lorca, 29 - 23871 Lomagna (LC) - Italy
Tel. +39 039 999 121
E-mail: europa@elemaster.com
Web: <https://www.elemaster.com>

Since more than 40 years, Elemaster stands out in the competitive scenario as Mechatronics Service Provider, offering to its own Customers customized services of design and manufacture of high-tech electronic equipment. In fact, thanks to its distinctive know-how of the processes, Elemaster can oversee the entire life cycle of the electronic product, from ODM to mechanical integration. Services that are offered cover all the stages of the value chain, from the ideas to the finished products, guaranteeing the highest level of skills from development to delivery of "turnkey" solutions.

For all these reasons, Elemaster is the perfect Electronic Technology Partner, a One Stop Shop for its Customers who are the major global players in the high-tech sectors such as railways, avionics, medical, automotive, industrial and energy ones.

From R&D and design to industrialization and certification of electronic devices, from rapid prototyping to mass production, from the manufacturing of custom components (printed circuit boards and wiring harnesses) to electro-mechanical integration and supply of "turnkey" products, and of course logistics and after-sales service, each of the 6,000 different products produced by Elemaster every year is the result of a tailor-made technological solution created to meet the specific needs of each Customer, thanks to the greatest level of flexibility, with batches that can range from a few units to hundreds of thousands of pieces.



Everel Group s.p.A.

Via Cavour 9 - 37067 Valeggio sul Mincio (VR)- Italy
Tel. +39 045 6313711 - Fax +39 045 6313730
E-mail: info@everelgroup.com
Web: www.everelgroup.com

Everel is an industrial multinational leader in the design and manufacturing of:

- electromechanical components also used in customized sub-assemblies, with and without integrated electronic. The products (switches, selectors, encoders, signal lights, motors, timers, mechatronic solutions and sub-assemblies) are broadly used in both large and small household appliances. Other markets covered are represented by Automotive (IATF 2016 certification), HVAC, Gardening & Outdoor.
- BLDC and shaded pole motors, along with complete ventilation units for domestic and professional appliances and HVAC market.

Everel provides customized solutions and supplies almost 400 Customers worldwide by its local distribution and agency network.



Meccanica H7 S.r.l.

Via Mutilati ed Invalidi del lavoro, 82
63100 Ascoli Piceno
Tel. +39 0736811060
E-mail: info@meccanich7.it
Web: www.meccanich7.it

Meccanica H7, since 1980, has been designing and building prototypes, serial produced machines, special machines and complete plants for any industrial applications. We work using flexible solutions, combining working centre machines, positioning systems, assembly units and robotic cells. Our organization and our achieved know-how allow us to supply reliable and technologically advanced products; with our continuous investments in research, we develop new ideas and innovative solutions for any industrial field. We have customers from all over the world and from a wide range of industrial fields: food, packaging, white goods, automotive, hydraulic and industrial hose, timing belts, wheel tyres, medical devices, automotive glass, corrugated and ceramic. We cover the complete production cycle: engineering, designing, manufacturing, assembly, testing, installation and assistance.

motoreducers
motoriduttori



Autom s.r.l.

Viale Rimembranze di Greco, 49 - 20125 Milano - Italy
Tel. +39 0266714727 - Fax +39 026702735
E-mail: info@autom.it
Web: www.autom.it

From 1971 AUTOM SRL represent the best option for the supply of A.C. and D.C. motors and gearmotors for powers from 2 to 300 Watts and speed between 0,1 and 300 r.p.m.

High efficiency Brushless gearmotors and Ventilators the following are just an example of typical application:

- Augers for Pellet and biomass stoves and boilers
- Automatic coffee machines and product dispenser
- Mixers - agitators for products and chemical substances
- Restaurant equipment and pasta maker machines
- Industrial grills and Kebab grills
- Industrial owens
- Hot chocolate dispensing machines and ice cream machines
- Door opening and door automation industry

Exclusive representative of Merkle Korff Industries



Meteor s.a.s. di Fabio Dell'Oglio & C.

Via S. Anna, 3 - 31010 Mareno di Piave (TV) - Italy
Tel. +39 04384939 - Fax +39 0438493929
E-mail: info@meteoritaly.com
Web: www.meteoritaly.com

Since 1966 leading supplier of electromechanical components for household appliances, industrial and professional applications:

- Gear motors
- Oven door latches
- Motorized locking systems
- Rotissene kit
- Actuators for valves
- Stamping and fine blanking parts
- Production of accessories

Dal 1966 fornitore di riferimento di componenti elettromeccanici per il settore domestico, professionale ed industriale:

- Motoriduttori
- Blocca porta forni
- Servo chiusure motorizzate
- Kit cottura
- Attuatori per valvole
- Stampaggio & tranciatura fine
- Produzione di accessori



Softing Italia s.r.l.

Via M. Kolbe, 6 - 20090 Cesano Boscone (MI)
Tel. 02 4505171
Web: www.softingitalia.it/motors

Softing Italia design and import the best solutions for household appliances, providing in particular motors and gearmotors tailored to the application needs.

Technology: DC, BLDC, synchronous, induction and shaded pole. Among the numerous applications that take advantage of our motors and gearmotors, we can mention:

- Pellet stoves and boilers
- Robots for garden and pool care
- Coffee machines
- Small battery-powered vehicles
- Ice cream makers
- Automatic doors

Softing Italia progetta e importa le migliori soluzioni di componentistica per gli apparecchi domestici. Specializzata in particolare nella fornitura di motori e motoriduttori ritagliati sulle esigenze dell'applicazione, con specifica competenza nelle tecnologie DC, BLDC, sincrona, a induzione e a poli schermati. Tra le molte applicazioni domestiche che beneficiano dei nostri motori e motoriduttori, possiamo menzionare:

- Stufe e caldaie a pellet
- Robot per la cura del giardino e della piscina
- Macchine del caffè
- Piccoli veicoli a batteria
- Gelatiere
- Porte automatiche

metalworking - automatic turning machines

metelmeccanica - tornerie automatiche



ILMEC s.r.l.

Via Monsignor A.O. Romero, 8/A - 60027 Osimo (AN)
E-mail: ilmec.2002@ilmec.it
Web: www.ilmec.it

Ilmec srl is a company borned in 2002, producing turned and grounded parts, specialized in manufacture of electric motor shafts.

It produces turned components in any alloy of material, especially in stainless steel.

It's provided with more than 25 CNC to realize components from Ø4 to Ø51mm, a grinding department, a heat treatment department and one for surface finishes.

It's certified ISO9001:2015 and using a management software that allows you to monitor all stages of production ensuring certain times on job orders.



Paradisi s.r.l.

Via G. di Vittorio, 15 - 60035 Jesi (AN)
Tel. +390731213594 - Fax +390731213658
E-mail: info@paradisi.it
Web: www.paradisi.it

Paradisi srl is a producer of turning precision components as well as handles, knobs and accessorizes for the domestic appliance sector.

The Company works hand in hand with its clients on drawings, designs and samples in order to guarantee the best end product.

Thanks to its qualified personnel (42 employers) and to its high-performance machines (88 automatic lathes), the company guarantees great flexibility and it's able to satisfy requests from the automotive, electro-mechanics, automation, household appliances, furniture, nautical and dental industries...

Paradisi is ISO9001, ISO14001, OHSAS18001, IATF16949 certified company, EMAS registered and a certified B-Corporation®."

motors production machines and solution

soluzioni e produzioni macchine motori



ATOP s.p.a.

Strada S. Appiano 8/A - 50021 Barberino Val d'Elsa (FI) - Italy
Tel. +39 055 8061.71 - Fax +39 055 8061.801
E-mail: info@atop.it
Web: www.atopwinding.com

ATOP is a leading manufacturer of **machines and automatic lines** for the production of wound stators and rotors of electric motors.

Our tasks include development of **tailored technology** focusing on innovation and efficiency to meet quality and production requirements in all **winding and assembly** processes.

Whichever winding technology is being used or electric motor type is being produced, ATOP manufactures machines/lines to guarantee high speed and precision assembly:

- Production lines for universal electric motors
- Production lines for brushless electric motors
- Production lines for traction electric motors
- Production lines for starter electric motors
- Production lines for alternators
- Production lines for induction electric motors

ATOP has an extensive international sales network and offers its customers a highly specialized customer service to increase efficiency, competitiveness and performance of its machines worldwide.



Dema s.r.l.

Via Emilio Vecchia 100 - 17019 Varazze (SV) - Italy
E-mail: info@demasassi.it
Web: www.demasassi.it

DEMA has been working for **companies producing electric motors** or **generators** operating all around the world in the business of **automotive, home appliance, power tools and industries** for more than 60 years.
DEMA offers you tailor-made lines that take care of your needs and fulfill your goals.
In order to obtain these results **DEMA** develops and builds internally stacking, joining, inspectioning and assembling lines for rotors and stators.
DEMA is the **first** and **only** company in the world able to guarantee reliable and **personalised** results through the **"tailor-made manufacturing" system** that joins the advantages of the both the industrial and the handcraft method.



E.GO s.r.l.

Via Buonarroti, 4/A - 50021 Barberino V.E. (FI)
E-mail: info@ego-engineering.it
Web: www.ego-engineering.it

E.GO is one of the worldwide leading manufacturer of machines and automatic lines for the production of wound stators and rotors of electric motors
E.GO has innovative solutions tailored to the end user and that are highly reliable, flexible and productive. And it is from the alchemy between creativity, innovation and industrial capacity that products are born that stand out strongly, characterized by a great quality
E.GO manufactures machines/lines to guarantee high speed and precision process:

- **Production lines for universal electric motors**
- **Production lines for brushless electric motors**
- **Production machines for starter electric motors**

 E.GO production program furthermore includes:
Impregnation for electric motors : roll dip, trickling, dipping
 E.GO offers its customers a highly specialized customer service to increase and improve efficiency, competitiveness and performance of its machines.



Grob Italy s.r.l.

Via della Praia, 8A int.2 - 10090 Buttigliera Alta (TO)
Tel. +39 0119348292 - Fax +39 0119348961
E-mail: info@it.grobgroup.com
Web: www.grobgroup.com

GROB Italy formerly DMG Meccanica and since February 2017 member of the Grob Group, is an Italian company that has been operating for over 25 years in the global market of electric motors and alternators machinery.
GROB Italy offers to its customers new solutions and tailor-made equipment with a high technology content. All based on past experiences, proven capabilities and knowledge of a high skill engineers team.
The current range of machines and lines for induction motor and alternator stators production, was born out of a long history of supply of well engineered, reliable equipment to the growing industrial world.
Range of equipment includes:

- Stator core manufacturing (slinky)
- Slot cell insulation
- Coil winding
- Coil inserting
- Coil forming
- Lacing and knot tying

posistors ptc & thermistors posistori ptc e termistori ntc

BIELETRICA



Bieletrica

Via Averolda, 8/10 - 25039 Travagliato (BS)
Tel. +39 0306863803 - Fax +39 0306863808
E-mail: info@bielettrica.com
Web: www.bielettrica.com

PTC
Resistances for household appliances and heating

printed circuit boards produzione e fornitura di circuiti stampati



Piciesse Elettronica s.r.l.

Plant 1: Via Conca, 445 - 47854 Montescudo Monte-Colombo(RN)
Plant 2: Via Cesare Beccaria, 54 - 47924 Casarola di San Clemente(RN)
Tel. +39 0541863055 - Fax +39 0541863048
E-mail: info@piciesse.it
Web: www.piciesse.com

Company:
Piciesse Elettronica is a leading PCBs Manufacturer and Supplier. International technology, quality that is IATF16949 in ext. VDA 6.3, ISO9001, ISO14001, OHSAS18001 certified. UL File No. E151325.

- Products:**
- Single-Sided PCBs
 - Metalcore PCBs
 - Double-Sided PCBs
 - Multilayer PCBs
 - Flex & Rigid Flex PCBs
 - Aluminium Flex PCBs
 - HDI
 - Micro-Vias BGA

- Applications:**
- Automotive
 - Lighting
 - Combustion
 - Ventilation
 - Electronics
 - Power Applications
 - Thermal Regulation
 - Home Automation
 - Video Communication
 - Household Appliances
 - Music Instruments

product design and injection moulds sviluppo prodotto e stampi per iniezione



Progind s.r.l.

Via Piane Regione Tomboletto - 10010 Azeglio (TO) - Italy
Tel. +39 0125728400 - Fax +39 0125727316
E-mail: info@progind.it
Web: www.progind.it

- Ideas taking shape
- Moulds Making, Mould Design and Co-Design
 - Manufacturing of multicavity automatic bi-and tri-injection moulds, IMD Moulds
 - Two-three shot injection moulding, IMD moulding
 - Painting, laser etching, chrome plating and selective chrome plating, assembly
 - Customized and mass production cycles
 - Tests, inspections and quality control
 - Management System ISO /TS 16949:2009 and ISO 9001:2008

push buttons & keyboards pulsanti e tastiere



Control H.T.P. s.r.l.

Via del lavoro, 31/33/35 - 20865 Usmate Velate (MB) - Italy
Tel. +39 0396889578
E-mail: info@control-htp.com
Web: www.control-htp.com

Established in 1981, Control H.T.P. has always been leader in design and production of temperature sensors for household appliance, professional and industrial market.
In 2016 Control H.T.P. acquired Easy.it, a company specialized in design and production of electronic boards for Ho.Re.Ca and household appliance market.
Now the two companies work in close cooperation with the aim of providing integrated solutions for sensors, electronics and interfaces.

Actual production range:

- Probes & Sensors
- Electronic boards
- Keyboards and display
- Push buttons
- Light indicators

raw materials materie prime



Advanced Modified Polymers

VAMP TECH s.p.a.

Via delle Industrie 10/12
20874 Busnago (MB) - Italy
Web: www.vamptech.com

VampTech is a privately owned independent compounder, founded in 1988, manufacturing thermoplastic solutions based on a wide range of base polymers (PA66, PA6, PPA, PP, PBT, styrenics, POM, PPOm, PPS, PEEK to name the most important). VampTech is specialized in developing innovative flame retardant compounds; with around 100 UL Yellow Cards and other international certifications (VDE, EN45545, ECE-R-118), a complete portfolio of solutions complying with EN60335, the possibility to deliver and support customers worldwide with a team of experienced professionals, VampTech is a perfect partner for Tier 1 and OEMs in the Household Appliances market.

“R&D/energy labeling testing machines”

macchine di prova per etichettatura energetica



3P ENGINEERING
Providing Progressive Projects

3P Engineering s.r.l.

Via D'Antona, 26 - 60033 Chiaravalle (AN)
Tel. +39 0717451535
E-mail: info@3pengineering.it
Web: www.3pengineering.it

3P Engineering stands out for its cutting edge know-how and competences, with a complete range of products and services for **household appliances**, developed through four Business Units:

- **Testing Laboratory accredited by Accredia n. 1537L UNI CEI EN ISO/IEC 17025:2018.** All the tests necessary to get the Energy Efficiency Label with the release of the UNI CEI EN ISO/IEC 17025:2018 test reports:
- ENERGY EFFICIENCY INDEX EEHood (Airflow, Pressure, Power and rotational speed Test)
- LIGHTING EFFICIENCY INDEX LEhood;
- GREASE FILTERING EFFICIENCY GFEhood (to measure the grease absorption factor (GF) of kitchen hoods IEC 61591);
- NOISE measurement.

In addition, 3P Engineering is able to check **the capture efficiency** and the energy class of conventional hoods and downdrafts (EU 65/2014; IEC/EN 61591), the performance of induction hobs (EN 60350-2) and measure the efficiency of cooking fume intake of the integrated hood in its accredited testing laboratory.

- **Test Benches.** Advanced systems for:
- Hoods (Test benches for Airflow, Grease, Noise, and Multifunctional Test Chamber for Odor, Light, Capture Efficiency);
- Cooktops and Ovens;
- Packaging, Clamp & Drop;
- Reliability Tests;
- Customized Test Benches.

All 3P Engineering test benches are equipped with 3P Labware, an interactive software platform, that can be adapted to specific customer requests to achieve a significant gain in operator time efficiency;

- **Product Development:** 3P Engineering retrieves, selects, analyzes, compares and tests all the similar existing products in the market to generate innovative solutions as evidenced by 31 registered patents of industrial invention, of which 21 for our customers.
- **Pre-Series:** mechanical works, production of small batches, heat treatments to surface treatments, coating, prototypes and pre-series, up to the assembly of components. 3P Engineering is also able to offer micro-production, which stands out in the market for its accuracy, managing the several stages of mechanical processing up to the assembly of the components, to cut production time.

3P Engineering works according to the Integrated Quality System: ISO 9001 / 14001 / EMAS / OHSAS 18001 / ISO 17025

rotary switches commutatori rotativi



Everel Group s.p.a.

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Fax +39 045 6313730
E-mail: info@everelgroup.com
Web: www.everelgroup.com

Everel is an industrial multinational leader in the design and manufacturing of:

- electromechanical components also used in customized sub-assemblies, with and without integrated electronic. The products (switches, selectors, encoders, signal lights, motors, timers, mechatronic solutions and sub-assemblies) are broadly used in both large and small household appliances. Other markets covered are represented by Automotive (IATF 2016 certification), HVAC, Gardening & Outdoor.
- BLDC and shaded pole motors, along with complete ventilation units for domestic and professional appliances and HVAC market.

Everel provides customized solutions and supplies almost 400 Customers worldwide by its local distribution and agency network.



Elettrotecnica Rold s.r.l.

Via della Merlata, 1 - 20014 Nerviano (MI) - Italy
Tel. +39 0331 438011
E-mail: marketing@rold.com
Web: www.rold.com

ROLD, with headquarter and manufacturing facilities in Nerviano, Milan (Italy), is a leading company in the production of innovative components and platforms, with a smart, connected technology: “Enable the potential of Home, Industrial and Professional devices for a Smarter Living” is Rold’s vision. Solutions and services created by Rold will pioneer the future of user experiences, workforce, consumers.

Rold Business Units are: Rold Appliance is the BU specialized in high quality components such as door safety locks, rotary switches, sensors; Rold Industrial developed SmartFab, an innovative platform for Industry 4.0 enabling the Industry IoT for intelligent plants and R-Lab is the multidisciplinary laboratory of Applied Research, ranging from Advanced Mechatronics to Human Machine Interactions, from Applications & Smart Devices to Advanced Materials. Rold from more than fifty years transforms inspiration to innovation, shaping strategic partnerships with customer companies and has been awarded among the most reliable suppliers.

sensors
sensori



Bluergo s.r.l.

Via Priuli, 15/d
31033 Treville di Castelfranco Veneto (TV)
Tel. +39 0423482291 - Fax +39 0423472900
E-mail: info@bluergo.com

Bluergo is a Italian company specialized in the design and manufacture of electromagnetic components.

The long experience in the automotive and in the household appliance sectors has enabled Bluergo to become an important partner for several major European companies. Innovation towards improvement has always characterized its growth and it has allowed Bluergo to face significant challenges. Thanks to its size Bluergo daily deals in the foreign market by offering competitive "made in Europe" products.



Control H.T.P. s.r.l.

Via del lavoro, 31/33/35 - 20865 Usmate Velate (MB) - Italy
Tel. +39 0396889578
E-mail: info@control-htp.com
Web: www.control-htp.com

Established in 1981, Control H.T.P. has always been leader in design and production of temperature sensors for household appliance, professional and industrial market. In 2016 Control H.T.P. acquired Eeasy.it, a company specialized in design and production of electronic boards for Ho.Re.Ca and household appliance market. Now the two companies work in close cooperation with the aim of providing integrated solutions for sensors, electronics and interfaces.

Actual production range:

- Probes & Sensors
- Electronic boards
- Keyboards and display
- Push buttons
- Light indicators



GTE ELETTRMECCANICA s.r.l.

Via Galileo Galilei, 1B - 20875 Burago di Molgora (MB)
Tel. +39 0392874265 - Fax +39 0392877205
E-mail: info@gtelettromeccanica.com
Web: www.gtelettromeccanica.com

GTE Elettromeccanica is involved on designing and manufacturing electromechanical components for fluid control.

We have a strong and consolidated know-how on: heating, steam and industrial applications.

We are continually committed to finding new and innovative solutions by working in partnership with our customers.

We developed a full range of products for fluid control systems:

- Transducers
- Pressure switches
- Flow switches

signal lights

segnali luminosi



Eldecom Dedicated Components s.r.l.

Via Cavallotti, 5 - 20853 Biassono (MB) - Italy
Tel. +39 0392752754 - Fax +39 0392752758
E-mail: info@eldecom.com
Web: www.eldecom.com

ELDECOM Dedicated Components srl produces and sells signal lamps, harnesses, probes and other dedicated items and it is owner of ELETTRMETAL trade mark, present on the market for more than 30 years.

Eldecom's main field is the one of small and middle-size electro-household appliances but our products are suitable for applications in industrial equipments, civil electro-technics, after market for auto-motive and more.

Our strength is the great attention to customers' needs, quick reactivity and reliability both for big quantities that for small ones.



Everel Group s.p.A.

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Fax +39 045 6313730
E-mail: info@everelgroup.com
Web: www.everelgroup.com

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- electromechanical components also used in customized sub-assemblies, with and without integrated electronic. The products (switches, selectors, encoders, signal lights, motors, timers, mechatronic solutions and sub-assemblies) are broadly used in both large and small household appliances. Other markets covered are represented by Automotive (IATF 2016 certification), HVAC, Gardening & Outdoor.
- BLDC and shaded pole motors, along with complete ventilation units for domestic and professional appliances and HVAC market.

Everel provides customized solutions and supplies almost 400 Customers worldwide by its local distribution and agency network.



your light on demand

Slim s.r.l.

Via dei Tigli, 14/16 - 20853 Biassono (MB)
Tel. +39 039492115 - Fax +39 039491654
E-mail: commercialeitalia@slim.it
Web: www.slim.it

Founded in 1973 as a manufacturing company, SLIM S.r.l. has matured a solid specialization during the years in the field of electric, electromechanical and electronic components (light indicators, switches and spare parts).

Avant-garde know how, constant technological and qualitative development and great attention to the customers' needs make SLIM the ideal supplier for those who look for quality products, quick deliveries and accurate services. SLIM develops customized products and lighting solutions with PCBs and optical fibres: an innovative and high quality technology to design, produce and supply flexible side emitting light guides, for design and freeform requests, that suit many final applications (from the household appliance to HVAC to back-lighting and switchboards).

SLIM supplies over the five continents directly or by its local wholesalers and agents' network.

small electric motors

motori elettrici



Everel Group s.p.a.

Via Cavour 9 - 37067 Valeggio sul Mincio (VR) - Italy
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- electromechanical components also used in customized sub-assemblies, with and without integrated electronic. The products (switches, selectors, encoders, signal lights, motors, timers, mechatronic solutions and sub-assemblies) are broadly used in both large and small household appliances. Other markets covered are represented by Automotive (IATF 2016 certification), HVAC, Gardening & Outdoor.
- BLDC and shaded pole motors, along with complete ventilation units for domestic and professional appliances and HVAC market.

Everel provides customized solutions and supplies almost 400 Customers worldwide by its local distribution and agency network.



Electric Motors Company s.r.l.

Via Pio La Torre 40-42
60022 Castelfidardo (AN) Italy
Tel. +39 071 78617
Email: sales@emcmotors.it
Web: www.emcmotors.it

Established in 1987, is specialized in the design and manufacturing of Blowers, Extractors, AC asynchronous, BLDC and Shaded poles electric motors. EMC is a reliable partner of leader European brands in several markets such as range hoods, ventilation for biomass stoves and medical devices.

Products and services:

- Co-design developing customized suction systems;
- Design and manufacturing of BLDC, Capacitor and Shaded Poles motors;
- Design and manufacturing of blowers with scrolls made out with plastic or die casting aluminum material;
- Exhaust fume extractors and heat blowers fans for biomass stoves;
- Electric motors for medical devices.

Quality approach:

APQP-PPAP-FMEA-MSA-SPC

solenoid valves

elettrovalvole



CEME s.p.a.

Viale dell' Industria, 5 - 27020 - Trivulzio (PV), Italy
Tel. +39 0382 18 051
E-mail: info@cemegroup.com

CEME, solenoid pumps and solenoid valves

Solenoid pumps, solenoid valves, pressure switches, flow meters for a perfect fluid control

Established in 1974, CEME is now a landmark for solenoid pumps and solenoid valves production in Italy and throughout the world. Over the years, the company has diversified its product range and their applications enriching its array of solenoid pumps, solenoid valves, pressure switches, flow meters and other components to properly control the passage of any type of fluid: water, gas, steam, air. CEME is renowned for its technical engineering know-how, quality, flexibility and for the distinctive ability to develop innovative solutions for customers on the Italian and international markets. Technology needs control.



www.rpesrl.it

Nothing great has been done without passion

Rpe s.r.l.

Via Sant' Ambrogio, 3 - 22070 Carbonate (CO) - Italy
Tel. +39 0331832515 - Fax +39 0331832501
E-mail: customercare@rpesrl.it
Web: www.rpesrl.it

RPE designs, develops and manufactures high quality solenoid valves, flow meters, pressure reducers, filters and fittings for a wide array of industries and applications.

We have over 40 years' experience offering our products in Italy and all over the world.

RPE is proud to be ISO 9001:2015 certified and compliant with international food and electrical certifications.

The key ingredients are our continuous Research & Development and our flexibility to customize products to our customer's specifications and requirements. Our Technical Department and team of Engineers have the experience and knowledge to design and meet your provisions and product requirements.

switches and converters

interruttori - variatori



Comestero Sistemi s.p.a.

Via Bolzano, 1/E - 20871 Vimercate (MB)
Tel. +39 - 039.625091 - Fax +39 - 039.667479
E-mail: info@comestero.com
Web: www.comestero.com
"A company of Gruppo Comestero Sistemi"

Gruppo Comestero" is an international company that, since 40 years, is involved in co-engineering, production and sale of the best electromechanical components and also in the development of innovative technical solutions for the industry.

Gruppo Comestero è una realtà internazionale che, da oltre 40 anni, si occupa di co-progettazione, produzione e vendita delle migliori componenti elettromeccaniche e dello sviluppo di soluzioni tecniche innovative per l'industria.

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Everel is an industrial multinational leader in the design and manufacturing of:

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Everel provides customized solutions and supplies almost 400 Customers worldwide by its local distribution and agency network.



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Elettrotecnica Rold s.r.l.

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ROLD, with headquarter and manufacturing facilities in Nerviano, Milan (Italy), is a leading company in the production of innovative components and platforms, with a smart, connected technology: "Enable the potential of Home, Industrial and Professional devices for a Smarter Living" is Rold's vision. Solutions and services created by Rold will pioneer the future of user experiences, workforce, consumers. Rold Business Units are: Rold Appliance is the BU specialized in high quality components such as door safety locks, rotary switches, sensors; Rold Industrial developed SmartFab, an innovative platform for Industry 4.0 enabling the Industry IoT for intelligent plants and R-Lab is the multidisciplinary laboratory of Applied Research, ranging from Advanced Mechatronics to Human Machine Interactions, from Applications & Smart Devices to Advanced Materials. Rold from more than fifty years transforms inspiration to innovation, shaping strategic partnerships with customer companies and has been awarded among the most reliable suppliers.

temperature controllers termoregolatori



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Web: www.s-rind.it

S&RIND srl has been practicing since 1996 with competence and professionalism in the field of electrical, electronic and mechanical components. Since the first years of activity, the exponential growth of the company has led to an expansion of the product range in the thermoregulation sector. Starting from mechanical and electronic single and three-phase thermostats, temperature and humidity probes, temperature controllers and Pentamotors motors, S&RIND designs products in accordance with the Customer's needs thanks to the versatility and flexibility of the production lines. The range of opportunities in terms of adjustments, variations, innovations and "ready to stock" make of S&RIND the point of reference for those who are looking for high quality standards at favorable prices. Last but not least, the dense sales network guarantees a widespread presence on the territory, if needed, both before and after sales. From the mass product to the niche one... S&RIND has the right solution for every situation



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Founded in 1992, Fast Milano started as main distributor in Italy of ITW (Illinois Tool Works - US based multinational group founded more than 100 years ago). Actually distributor of ITW Lys Fusion (Automotive fasteners) and ITW Appliance Components. We distribute ITW ElettroGiBi terminal blocks and cable clamps and ITW Ispracontrols gas igniters and switch harnesses (all our products are UL, VDA and IMQ certified). Visit our website for the complete product range and informations.

thermostats termostati



C.a.e.m. s.r.l.

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Founded in 1966, through constant and continuous technological innovation and research, CAEM has become a great company that combines Italian quality and family tradition to the highest qualitative standards. CAEM offers thermostats with copper or stainless steel bulbs and capillary; sensing elements and boxed thermostats for heating. Certified ISO 9001:2008, OHSAS 18001:2007. Quality Trade Marks IMQ, UL, INAIL.

terminals and binding clamps morsettiere



Electro-Group di F. Fazio

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Web: www.electro-group.it
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DMP srl was founded in 2004 and leverages know-how and competencies of former managers at Texas Instruments Aversa (CE) with a mission to serve the market of thermal cut outs and current overload protection of the small electric motors, solenoids and transformers with bi-metal technology.

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R&D Components is a company that is specialized in the field of Thermal protection, such as thermostats, thermal limiters, capillary thermostats, and thermal fuses, as well as Sensor PT and NTC.

Our Italian Office is a branch of ALBOL, THERMOREX, TMC, UST and the European representation of SUNG WOO, that produce thermafuses in Korea.



Reco s.r.l.

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Reco Group, a family company, from father to son, from reco to reart, has attained world leadership in design and production of sheathed heating elements for domestic and industrial sectors thanks to 50 years of experience. A high level of specialization and quality enable the group to satisfy any customer requirements with "tailor made" projects and products.

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THERMOWATT, founded in '50s, is the Italian worldwide leading manufacturer of stem thermostats and heating elements for domestic and professional appliances. Thanks to the tight selection of raw materials, high skilled technicians and automated manufacturing and calibration process, THERMOWATT, is well known all over the world for the quality, safety and reliability of its thermostats.

THERMOWATT offers a wide range of products including stem, capillary and contact thermostats for electric water heaters and domestic appliances.

THERMOWATT is certified by the major international institutes: ISO9001:2008, ISO14001:2004 and ISO18001:2007. Quality Trade Marks: IMQ, VDE, UL, GOST. With an annual production of more than 40 million pieces.

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transformers/inductors trasformatori/induttori



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Born in 1976 from an idea of the founder Erasmo Di Tonno, ICE is now one of the leading companies in Italy for the design and production of CUSTOM wound components for electrical and electronic applications.

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Since 1978 the company is producing temperature sensors for a very wide range of applications. The main attitude of the company is the research of new solutions for temperature measurement through the adoption of several technologies and through a direct support to the customer in the application design. The company also have the possibility to produce high volumes at competitive prices providing a complete solution.



Microline s.r.l.

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product development and optimization

sviluppo ed ottimizzazione di prodotti



Elica Propulsion Laboratory

EPL - Elica Propulsion Laboratory EPL of Elica SpA

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UNI EN ISO/IEC 17025: 2005 TESTING & CERTIFICATIONS RESEARCH

Safety, Materials, Performances, Components, Noise measurement & analysis, Finished Products Energy Efficiency, Technologies, EMC, Reliability, Packaging

Qualification and certification of finished products, materials and components:

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- Performance and Energy Efficiency;
- Noise measurement;
- Identification of acoustic sources (acoustic holography);
- X-ray chemical analysis;
- Packaging Tests;
- Reliability;
- Resistance to fire and corrosion;
- Safety: evaluation of product conformity to the Safety STD (UL&IEC) and international certifications in partnership with UL (American Body);
- Tailor-made test according to customer specifications. Research and Innovation on finished products, materials, components and technologies.



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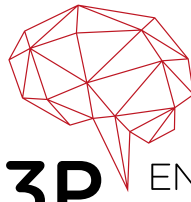
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3P Engineering s.r.l.

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3P Engineering stands out for its cutting edge know-how and competences with a complete range of top-performing solutions for household appliances, developed through four Business Units.

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safety certification organization

organizzazione per la certificazione di sicurezza



Elica Propulsion Laboratory

EPL - Elica Propulsion Laboratory EPL of Elica S.p.A.

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Safety, Materials, Performances, Components, Noise measurement & analysis, Finished Products Energy Efficiency, Technologies, EMC, Reliability, Packaging

Qualification and certification of finished products, materials and components:

- Evaluation & testing for conformity to Electromagnetic Compatibility;
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UL

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