

# ORANGE

Total.171  
Vol. 006 2024 SUMMER

## NEWS

Interview on Manufacturing

AI Sorts Recyclable Waste

Working toward a sustainable workplace where  
human hands are freed up at the recycling site

WORK&SOUL

Ko-ken Tool Co., Ltd.

TAKAMAZ's Efforts

Programming Assistance Tool

T-PROGRAM GUIDE

information

Exhibited at MEX Kanazawa 2024

Exhibit at the New Environmental Exposition 2024 / Strolling Through TAKAMAZ

Traveling the Hokuriku Area to Experience Craftsmanship

The beauty of the grain of the wood is fascinating.

Visiting a hot-spring resort with the allure of Yamanaka lacquerware.

[Cover photo] Location: GATO MIKIO/1

This edition's cover photo was taken at the first directly-managed store of Gato Mikio Shouten, which has a high reputation both in Japan and overseas for Yamanaka lacquerware of exceptional design. It conveys the tradition and attraction of Yamanaka lacquerware through events and workshops.

[Model] Anna Tauchi

**TAKAMAZ**

TAKAMATSU MACHINERY  
PR Magazine Summer 2024



Technical Development Department,  
Conceptual Design Section  
Reo Yamamoto

FA Solutions Office, Office manager  
Yoshihiro Uchikoshi

## AI Sorts Recyclable Waste Working toward a sustainable workplace where human hands are freed up at the recycling site

At MEX Kanazawa 2024 (the 60th Machinery & Electronics Exhibition in Kanazawa) held from May 16 to 18, 2024, we exhibited the “AI-B-sort” recyclable waste automatic AI sorting machine. It aims to eliminate labor shortages by making use of AI and robot technology. The recycling field is a new market for TAKAMAZ. Here, two members of staff who worked on its development describe the story up to the exhibition of this product, and the concept behind it.

**You were both involved in the development of the “AI-B-sort” recyclable waste automatic AI sorting machine; could you tell us the roles you played?**

FA Solutions Office, Office manager

**Uchikoshi**

To begin with how this machine came to be developed, the company PFU had exhibited

an AI recognition system for an automatic sorting machine at MEX Kanazawa 2022, and they were looking for a company that could handle everything from the design of the machine to product sales, along with after sales services. It was there that I approached them and that is how it all started. Subsequent to that, I gave a presentation in-house outlining what they wanted us to make, and I managed to get it into production. The official start was in the early fall of 2022, and it was then time to request the design to the Technical Development Department.

Technical Development Department,  
Conceptual Design Section

**Yamamoto**

The person who came to be in charge of that design was me. The design of this machine



seemed rapidly, and a prototype was exhibited at MEX Kanazawa 2023.

**Uchikoshi**

To give some context, this was being progressed as a joint project with PFU, which had started development 4 to 5 years previously. The survey of plant manufacturers and others had already been nearly completed and the necessary connections had been made, so it was very



different from when starting from nothing. Then we officially released the product in April this year.

**This was design work in a new field; did you ever feel bewildered?**

**Yamamoto**

When my superior first asked me “This will be work on a new project but do you want to give it a go?”, I accepted because I thought it would be interesting. However, when we came to start the design work there were many things that we didn’t understand. I was keenly aware of my lack of experience every day, but the advice from my superior and others around me made up for that. I received a lot of ideas and advice from Mr. Uchikoshi in particular. One of the units that was born out of these ideas made it as far as a patent application. I feel that if I had not been in charge of this design, I would not have experienced so much personal growth.

**Uchikoshi**

What was requested of us in the recycling field was very different from work in the machine tool field that TAKAMAZ has been involved with up until now. Of course you sometimes lose your bearings, but you also have opportunities for growth.

**Yamamoto**

The technology for identifying the colors of glass bottles came from PFU, while the mechanism for conveying that information to a robot and collecting the bottles was our technology. The entire team brainstormed ideas and went through a lot of trial and error such as for finding a way to change the speed according to the size of the bottle.

**Is there anything that you were particularly focused on besides the design of the machine?**

**Uchikoshi**

We finally settled on the name “AI-B-sort”, but there were various proposals for names that were innovative or had a taste of Japanese anime.

Mr. Yamamoto seemed to have strong ideas about the design and color of the machine.

**Yamamoto**

That’s right. I was quite particular about the color of the machine. Gray and silver are the main colors used by TAKAMAZ now, but we are taking on the challenge of recycling - a new field for us - so we made the base colors white and black, which we have not used much before. I was also insistent about a high-class matte tone to evoke a sense of AI.

**Uchikoshi**

TAKAMAZ is managing the organization with a 3-year medium-term business plan in place, and its basic policy is “Changing and Challenging in 2024”. We are changing norms and taking on new challenges. I hope that “AI-B-sort”, released in 2024 in conjunction with the medium-term business plan that started in 2022, will become a product that is symbolic of this phase.

**You also have to keep carving out a path in the new market of the recycling field, I suppose?**

**Uchikoshi**

It is clear from general investigation that waste is increasing on a worldwide scale. There is a strong concern that if we carry on like this the waste processing facilities will fail. The situation is such that labor shortages are becoming an issue in every field, and in the waste processing facilities too, elderly workers are checking the colors of the glass bottles carried toward them on a belt conveyor and sorting them one by one. We want to automate this, but distinguishing colors is difficult because the level of accuracy required is extremely high. This has been a factor hindering automation. There are already various automation solutions for PET bottles and cans available on the market, but there are no machines that can identify the color of glass bottles. This presents us with a business opportunity.

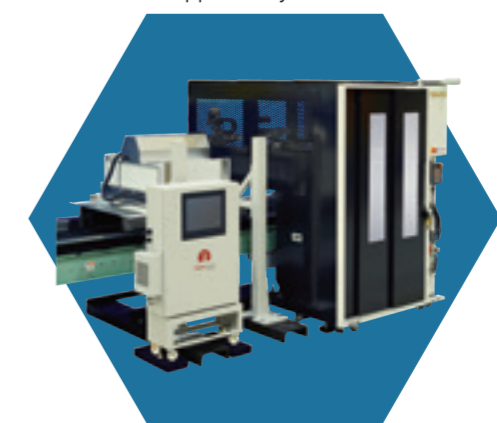


In bottle collection in Ishikawa Prefecture, the residents sort the bottles into colors when putting the garbage out, but if we look across Japan as a whole, nearly 70% of collections are mixed and the bottles are sorted manually once they have reached the processing facility. Around 4 or 5 people are required for this work, and the working environment cannot be said to be good. We are now able to offer suggestions for automating this work.

**Yamamoto**

The official release was in April, but we completed deliveries of advance sales at the end of March and actual operation started from April. From now on we will work to bring the product to the attention of many people, and to ensure that our technology can make a contribution, however small, to the recycling field.

TAKAMAZ’s spirit of “Changing and Challenging” has been manifested in the physical form of a product as the “AI-B-sort” recyclable waste automatic AI sorting machine. The difficulty of confronting a new market has changed to fun, and TAKAMAZ will continue taking on challenges.



Recyclable waste  
automatic AI  
sorting machine  
**AI-B-sort**

vol.006

Ko-ken Tool Co., Ltd.

## Relationship with Connections build the future.

Pouring passion and know-how into making tools trusted by professional mechanics for over half a century at Kakegawa, Shizuoka Prefecture, the fruits of efforts have taken shape



WORK &amp; SOUL



The manufacturing site with over 30 TAKAMAZ machines in operation

Manufacturing Section 2,  
Section Head  
Atsuhiko MiyamotoGeneral Manager of  
Manufacturing Dept  
Hirotugu AkahoriExecutive Director  
Atsushi MuramatsuSection Chief  
Product Planning  
Naohika Morita

### The quality of the tools is nothing but the crystallization of passion and know-how thought out for the benefit of the user.

Ko-ken Tool Co., Ltd. is expanding the “Ko-ken” brand worldwide and establishing a solid position as a manufacturer specializing in socket wrenches. The “Z-EAL” series of socket wrenches catering to the needs of auto mechanics working in increasingly restricted spaces has further enhanced the reputation of the “Ko-ken” brand and engendered deep trust from professional mechanics. For this edition we visited the manufacturing plant for the “Ko-ken” brand and asked them for their thoughts on manufacturing and commitment to quality.

#### First of all, please tell us your company's history.

**[Muramatsu Executive Director]** Our founder Soichiro Yamashita went to America at the age of 18, built up experience as an employee of Ford, then on returning to Japan started manufacturing and selling tools in Hyogo, but lost the factory through war damage in 1945. In 1946 he went back to his home town of Kakegawa City in Shizuoka Prefecture and established Ko-ken Tool Co., Ltd. Thinking back on those times,

attention was given to overseas markets very early on, and products were exported actively. Now we send products to around 60 countries, and we have secured a high share of the worldwide socket wrench market.

#### Is there a philosophy that hasn't changed since your foundation?

**[Muramatsu Executive Director]** I think this is more or less the same in every industry, but the word that comes up first is “quality”. I think it is particularly important to keep manufacturing products that are easy to use for those who work with them.

#### Would you say that your company's competitive advantage also derived from its commitment to ease of use?

**[Muramatsu Executive Director]** Our selling point in recent years is the compact design represented by the Z-EAL series, but we are especially particular about the “lightness of idle torque” made possible by the ratchet handle

construction. I think this is well regarded in the market. In more detailed terms, a light idle torque means that when tightening in a confined space, the target nut does not rotate with the tool and tightening force can always be applied. The Z-EAL series, which was released in 2010, adopted a completely different mechanism to previous ones, but even in the prototype stage of design we continued to test how to lighten the idle torque.

#### Z-EAL has gained a good reputation in the market and further strengthened the “Ko-ken” brand, hasn't it?

**[Muramatsu Executive Director]** With the Z-EAL series, we have right from the start been working to develop tools that professional mechanics will regard as “the one that can do the job”. The basic premise of Z-EAL is that it is designed to be compact so that work can be done smoothly in the confined space of an engine compartment, and we have put our passion and know-how as a specialized manufacturer of socket wrenches

into its design. Another strength that we can claim is the fine sizing of our range of sockets. Just looking at the products we have listed in catalogs, there are over 8,000 items available, and I think this is a feature that other companies do not offer. Needless to say, this involves a lot of hard work... (laughs)

#### Next I would like to ask you about “Ko-ken”'s manufacturing. Please tell us about the ideas that are important to you from day to day in the manufacturing division.

**[Akahori General Manager]** At our manufacturing site, we are operating new machines while making effective use of existing equipment. Taking care of equipment is an important mindset for our company.

**[Muramatsu Executive Director]** We also view “connections” as very important. Our partner companies and suppliers, and all of our employees. Without connections between people, there can be no business. It is also the first word to come

up in the company management policy. I feel its importance particularly now that the manufacturing site is busy. Work cannot progress on the basis of “my department only” or “my company only”. We have connections with people, they help us with our work, and that is how the company runs.

#### The connection with TAKAMAZ has endured for a long time, hasn't it?

**[Akahori General Manager]** When I entered the company we were already operating TAKAMAZ machines like TOP-TURN and mini-TURN. We subsequently bought more new machines, and quite a number are operating now. What I think is best about TAKAMAZ machines is that setup changes are easy. I am very glad that we can lighten the burden of frequent setup changes made necessary by high-mix low-volume production.

**[Muramatsu Executive Director]** That's right, I think that TAKAMAZ machines are a perfect match for our production, with more than 8,000

item types and 300 to 1,000 lots. The first CNC lathe that I used was the TAKAMAZ mini-TURN, so I have a personal attachment to it.

More than 70 years since its foundation in 1946, Ko-ken Tool Co., Ltd. continues to explore manufacturing as a specialist in socket wrenches. That passion breathes within Z-EAL, developed to be the “mechanics’ standard” for the next generation. We are very happy if TAKAMAZ machines have played a part in this.

# Koken



**[Ko-ken Tool Co., Ltd.]**  
656 Nakaho, Kakegawa-city, Shizuoka  
TEL:+81-(0)537-74-2171 FAX:+81-(0)537-74-3746  
President: Takamichi Naito  
Capital: 50 million yen  
Employees: 176  
Establishment: 1946  
Business activities: Manufacturer specializing in socket wrenches, delivering products to 60 countries worldwide

TAKAMAZ's Efforts

Programming Assistance Tool  
T-PROGRAM GUIDE

The first requirement when mass producing parts using machine tools is setup. A lot of preparation is required, from understanding the shape of the material and creating a cutting program, to selecting and mounting the cutting tool and chuck. Unlike skilled workers, it takes time for inexperienced operators to master the know-how required for creating programs for cutting to the required accuracy in a short period of time, making full use of G-codes and so on. They will also be apprehensive about their ability to accomplish the cutting using the completed program without any interference. To address this, we are introducing an assistance function that enables even operators with little experience to create programs without errors, called the T-PROGRAM GUIDE.

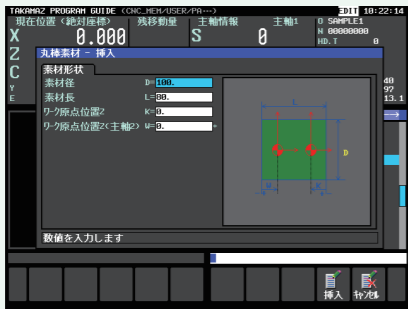


XTS-6

■ Programs can be created simply by entering the necessary information in order on the screen.

① Workpiece settings

Enter the stipulated information, such as the material and dimensions.



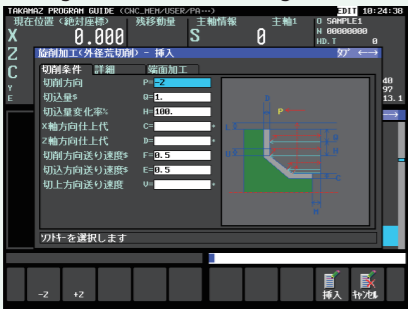
② Tool condition settings

The cutting conditions are automatically selected according to the selected tool and workpiece material.



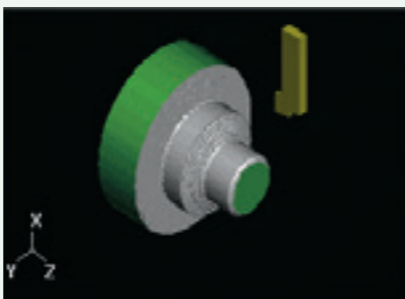
③ Cutting cycle settings

Cutting cycles appropriate for the tool to be used are displayed, allowing selection without faltering.



④ Simulation (MGi)

The created program can be checked through a simulated animation.



■ Functions allowing tool management and facilitating process editing are provided.

● Tool management

-Input of condition settings for each program is simplified by pre-registration of tool information (material, shape, T codes, etc.).  
-Cutting conditions according to tool material and workpiece material are put in a database.



● Process editing

-Cycles and conditions can be checked for each process, thereby simplifying editing operations.  
-Adding/deleting/replacing processes, and changing/editing cutting cycles can be done easily using soft keys.



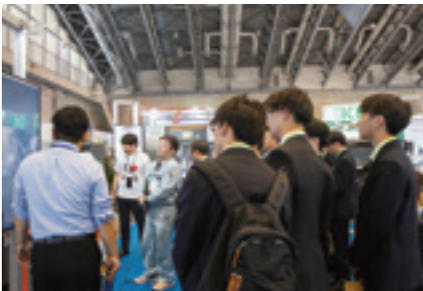
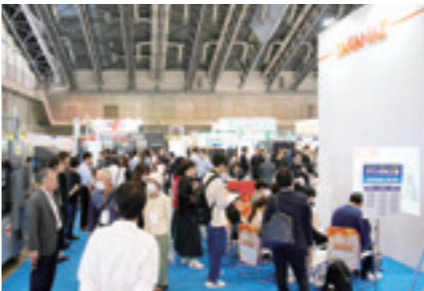
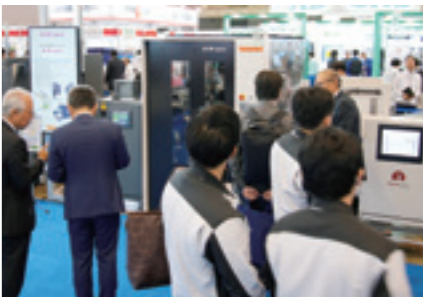
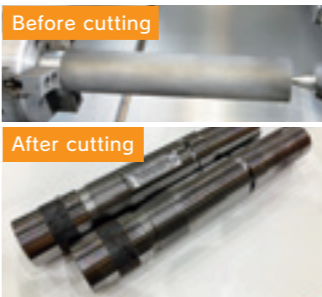
\*T-PROGRAM GUIDE is based on the FANUC manual guide.

Compatible models XTL-8,XTS-6,XT-6,XT-6M,XT-8,XT-8M,XT-8MY

information

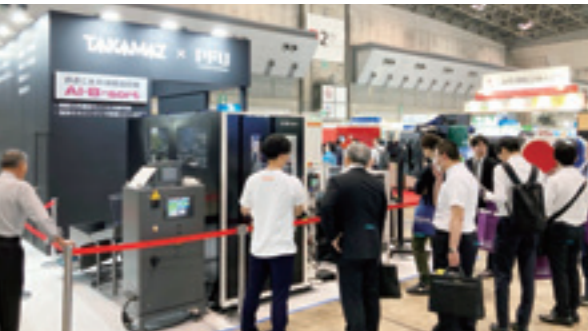
TOPIC1  
Exhibited at MEX Kanazawa 2024

We exhibited again this year at MEX Kanazawa 2024, which was staged over the three days from May 16 to 18. The theme we set this time was “Automation is not something in the future”, and we demonstrated automatic transfer of a motor shaft on the new model [XTL-8 series], and cutting of demo workpieces. The XTL-8, which is a basic model, is able to cut workpieces up to 600-mm long, and is a next-generation CNC lathe with consideration for energy savings. The new project “recyclable waste automatic AI sorting machine: AI-B-sort” also attracted the attention of many visitors. We sincerely thank everyone who stopped by at the TAKAMAZ booth.



TOPIC2  
Exhibit at the New Environmental Exposition 2024

Following on MEX Kanazawa, we also exhibited the “recyclable waste automatic AI sorting machine: AI-B-sort” at the New Environmental Exposition 2024, which was staged in Tokyo from May 22 to 24. As the exhibition was dedicated to green industries, we attracted a lot of interest from visitors. We will make use of the valuable opinions that we received from everybody in future product development, and make efforts in our new challenge to ensure that, however small, our products will contribute to the recycling field.



Strolling Through TAKAMAZ / F.T.Japan Co.,Ltd. Yang Zhi Yi

Mr. Yang's main work is the importation and sales of machine tools from Taiwan, at F.T. Japan Co., Ltd. He lives in Kanazawa and is in his second year at a desk in the Asahi Plant. He truly enjoys his current job, so much that he describes it as a calling.

He came to Japan as an exchange student, and that is how he encountered karate. When he visited Japan again, he started going to a karate dojo once again and even earned a brown belt. His target now is to acquire a black belt.

His guideline for action is “What can I do for you?”. Whether attending to the work he is in charge of or daily cleaning, he always looks for things he can do for other people: for the company, for customers, or for his colleagues.



At JIMTOF 2024 I will demonstrate cutting on a general-purpose lathe.

Please refer to the enclosed leaflet for details of FTJ's product offerings.

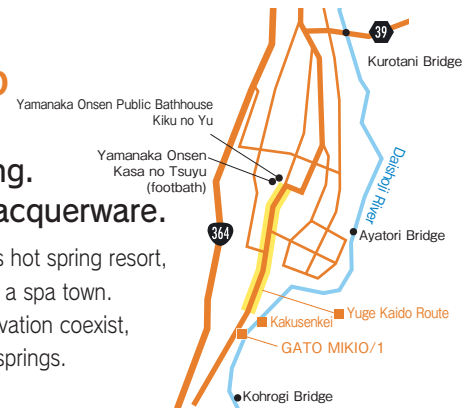
# Traveling the Hokuriku Area to Experience Craftsmanship

— CRAFT CONSCIOUS —

The beauty of the grain of the wood is fascinating.  
Visiting a hot-spring resort with the allure of Yamanaka lacquerware.

Yamanaka lacquerware has continued to increase in value over the past 450 years in this hot spring resort, nestled alongside the beautiful Kakusenkei Valley and filled with the atmosphere of a spa town. Visitors can experience the charm of Yamanaka lacquerware, where tradition and innovation coexist, and be healed both physically and mentally by the spectacular views and hot springs.

Enjoy a special time at Yamanaka Onsen.



## GATO MIKIO/1

Opened in 2017 by the fourth-generation president with the concept of "going back to the basics." Well-designed lacquerware that makes the most of the characteristics of the region, such as traditional woodturning or by decorative woodturning (kashokubiki), are planned and produced.



## Yuge Kaido Route

Soaking in the footbath at the Kiku-no-Yu public bathhouse and strolling along the Yuge Kaido Route lined with galleries showing Yamanaka lacquerware and other items is a way to enjoy a hot spring resort that is unique to Yamanaka.



## Kakusenkei

The Daishoji River valley that runs along the hot spring resort in Yamanaka is one of the most scenic spots in Ishikawa Prefecture. A promenade stretches about 1.3 km from the Kohrogi Bridge upstream to the Kurotani Bridge.

Yamanaka-Nuri is a type of lacquerware produced in the Yamanaka Onsen area of Kaga City, Ishikawa Prefecture, and is also called Yamanaka lacquerware. There are three lacquerware production areas in Ishikawa Prefecture, which are characterized as "Wajima for lacquering," "Kanazawa for maki-e (lacquerwork using gold/silver)" and "Yamanaka for wood". Yamanaka lacquerware, which makes the most of grain patterns and values natural textures, is attractive for its outstanding woodworking that enables exquisite finishes such as thinly-turned and lidded pieces.

When you visit Yamanaka Onsen, you will find numerous lacquerware shops.

"GATO MIKIO/1" is one of them. Facing onto Yuge Kaido, the main street of the hot spring resort area, this is the first directly-managed store of Gato Mikio Shouten, and displays a splendid array of lacquerware that showcases the tradition and beauty of the materials used in Yamanaka lacquerware.

Enjoy hot spring gourmet food while visiting the Yamanaka lacquerware galleries, and take a scenic stroll along the Kakusenkei Valley. Spending a luxurious time, followed by soaking in the soothing footbath at the hot spring resort area, is the journey with craftsmanship that can be experienced at Yamanaka. It is truly the best.

# TAKAMAZ

Scan this QR Code  
for more details. ▶  
<https://www.takamaz.co.jp>



## TAKAMATSU MACHINERY CO., LTD.

### ■HEAD OFFICE & PLANT

1-8 ASAHIGAOKA HAKUSAN-CITY ISHIKAWA JAPAN. 924-8558  
TEL +81-(0)76-207-6155 FAX +81-(0)76-274-1418

### ■ASAHI PLANT

4-13 ASAHIGAOKA HAKUSAN-CITY ISHIKAWA JAPAN. 924-0004  
TEL +81-(0)76-274-0123 FAX +81-(0)76-274-8530

## TAKAMATSU MACHINERY U.S.A., INC.

### ■CHICAGO HEAD OFFICE

1280 LANDMEIER ROAD ELK GROVE VILLAGE, IL 60007 USA  
TEL +1-(0)847-981-8577 FAX +1-(0)847-981-8599

## TAKAMAZ MACHINERY EUROPE GmbH

IM HÜLSFELD 19, 40721 HILDEN, GERMANY  
TEL +49-(0)2103-789-4882 FAX +49-(0)2103-789-4883

## TAKAMAZ MACHINERY (HANGZHOU) CO., LTD.

### ■HANGZHOU HEAD OFFICE

NO.6800, JIANGDONG 3RD ROAD, JIANGDONG INDUSTRIAL PARK,  
XIAOSHAN, HANGZHOU, ZHEJIANG, CHINA  
TEL +86-(0)571-8287-9709 FAX +86-(0)571-8215-3732

## TAKAMATSU MACHINERY (THAILAND) CO., LTD.

### ■BANGKOK HEAD OFFICE

888/59 MOO 9, TAMBOL BANGPLA, AMPHUR BANGPLEE,  
SAMUTPRAKARN PROVINCE, THAILAND  
TEL +66-(0)2-136-7831 FAX +66-(0)2-136-7834

## PT. TAKAMAZ INDONESIA

JL. FESTIVAL BOULEVARD BLOK AA 11 NO.30,31 GRAND WISATA  
TAMBUN, BEKASI 17510  
TEL +62-(0)21-8261-6431 FAX +62-(0)21-8261-6430

## TAKAMAZ MACHINERY MEXICO, S.A. DE C.V.

AVENIDA DE LOS INDUSTRIALES 522, LOCAL 4, INDUSTRIAL JULIAN  
DE OBREGON, 37290 LEON, GUANAJUATO MEXICO  
TEL +52-477-784-0468

## TAKAMATSU MACHINERY VIETNAM CO., LTD

NO.76 M HOANG QUOC VIET, PHU MY WARD, DISTRICT 7, HO CHI  
MINH CITY, VIETNAM  
TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

TEL +84-(0)28-3620-5671 FAX +84-(0)28-3620-5673

※Our PR Magazine Revamp

TEL (076) 274-1408 FAX (076) 274-8530