# TOOLS INTOOLS INTOOLS INTO DE INTOOLS INTOOLS INTOOLS INTOOLS INTO DE INTOOLS INTOOLS

# DESIGN & MODELING CATALOG BOOK

Teels INT'L

No.6 English Edition



Our former company, IZUMIYA(Too) was established in 1919 as artists' supplier. The year 2009 is 90 years anniversary of IZUMIYA(Too), and as of February 2, 2009, we have come to new establishment of company called "TOOLS INTERNATIONAL Corporation" as a result that our company has integrated sections that mainly sell the series of clay, modeling materials, equipments, design materials, school teaching materials, and hold workshops.

Our company specializing in the product design field including the car design makes the best use of accumulating knowhow to provide the necessary materials and service that correspond in the age promptly.

We produce and supply our original products, which are supported by the users and share users, comments and requests with not only sales division but also R&D and Quality Control division. We will continue research & development and make an effort on improving our products. We not only approach advanced automotive design regions of USA and Europe, but also in particular, high growth developing expectation of Asian region especially such as China and India. Our approach is highly regarded by automotive manufacturers and model studios of each countries.

In the future, we will continue corresponding with a globalization of automotive design. Using the business basis that has been constructed up to now, we will steadily strengthen automotive design business further in the future.

Company Profile	
Trade Name	TOOLS INTERNATIONAL Corporation
President & CEO	Kentaro Shimokura
Business Functions	Relating business in manufacturing and sales of the car design material, ca modeling apparatus, design materials, painting materials, stationeries, design equipments, R&D, educational business for personnel training and al accompanied business.
Founded	February 2, 2009
Head Office	Toranomon 36 Mori Building, 3-4-7 Toranomon, Minato-ku, Tokyo 105-0001, Japan
Paid Capital	JPY 98,000,000
Employees	25

### **Client List**

Asia ARRK Corporation (Thailand) Ltd., Ashok Leyland, Bajaj Auto Ltd, Bufori Motor Car Company (M) SDN BHD, Designskillset,

Desmania Design Private Limited, Dilip Chhabria Design Pvt. Ltd., DYPDC, General Motors Technical Centre India Pvt. Ltd., GM KOREA Company,

Hero Moto Corp Ltd., Honda R&D Asia Pacific Co., Ltd., Honda R&D (India) Pvt. Ltd., Honda R&D Southeast Asia Co., Ltd., Hyundai • Kia Motors,

Indian Institute of Technology, Isuzu Technical Center of Asia Co., Ltd., Kawasaki Motors Enterprise (Thailand) Co., Ltd., Mahindra & Mahindra Ltd,

Maruti Suzuki India Limited, MIT institute of Design, National Institute of Design, National University of Singapore, NAZA Group,

Oriental Nichinan Design Engineering Sdn Bhd, Perodua Manufacturing SDN BHD, Perusahaan Otomobil Nasional (Proton) Sdn Bhd, Proreka (M) SDN BHD,

PT Astra Daihatsu Motor, PT Isuzu Astra Motor Indonesia, Renault India, Royal Enfield, Ssang Yong Motor Company, TATA Elxsi Limited, TATA Motors Limited,

The Hong Kong Polytechnic University, TVS Motor Company Limited, Yamaha Motor Asian Center Co., Ltd.

Brazil Fiat Automoveis S/A, Ford Motor Company, General Motors do Brasil Ltda, iCON Design, Instituto Maua de Tecnologia, Moto Honda da Amazonia Ltda., Peugeot Citroen do Brasil Automoveis Ltda, R Design Studio, Renault do Brasil, Volkswagen do Brasil Ltda.

**China** Beijing Automotive Industry Holding Co., Ltd, BYD Company Limited, Chery Automobile Co., Ltd,
China Changan Automobile Group (Including affiliated companies of the six Groups). China FAW Group Corporation, Dongfeng Motor Group Corporation,
Geely Automobile Company Limited, Great Wall Motor Company Limited, Guangzhou Automobile Industry Group Co., Ltd, SAIC Motor Corporation Limited

**EU** AB Volvo, Adam Opel GmbH, Aston Martin, AUDI AG, Bentley Motors Limited, Bayerische Motoren Werke (BMW) AG, Citroen, DAF Trucks NV, Ford-Werke Aktiengesellschaft, Mercedes-Benz, Peugeot S.A., Porsche SE, Renault S.A., Scuola Politecnica del Design, SEAT S.A., Skoda Auto, VOLKE Entwicklungsring GmbH, Volkswagen Group

JAPAN ARRK Corporation, Daihatsu Motor Co., Ltd., Fuji Heavy Industries Ltd., Honda R&D Co., Ltd., Isuzu Motors Limited, Mazda Motor Corporation, Mitsubishi Motors Corporation, Nichinan Corporation, Nissan Motor Co., Ltd., Phiaro Corporation, Shonan Design Co., Ltd., SIVAX INC., Suzuki Motor Corporation, Tokyo R&D Co., Ltd., Toyota Motor Corporation, Yamaha Motor Co., Ltd.

**Oceania** Ford Motor Company of Australia Limited, GM Holden Ltd, Massey University, Monash University

**Russia** AVTOVAZ

**Taiwan** China Motor Corporation, Ford Lio Ho Motor Co., Ltd, Hua-chuang Automobile Information Technical Center Co., Ltd, KUOZUI Motors, Ltd., Mingchi University of Technology, Yamaha Motor R&D Taiwan Co., Ltd.

USA Chrysler Group, College for Creative Studies, Ford Motor Company, General Motors Company

### Event

### Automotive Designers' Night in China, Automotive Designers' Night in Japan

Tokyo Motor Show Kids' Workshop

Kids can make their ideal cars out of clay together with instructors who are experienced professional clay modelers from Japanese automotive makers.

### C&T Meeting

The party sponsored by Car Styling and TOOLS INTERNATIONAL Corp. held in every January for car designers and modelers.

### Clay Model Exhibition

Professional clay modelers of automotive makers and model studios exhibit their works.











### **Industrial Clay**

Our Industrial Clay is chemical composed clay used for 3D modeling design products, such as automobile, motorcycle, and consumer electronics products. Clay does not have much expansion / shrinkage and remains certain hardness at temperature around 25°C. The shape of the clay is stable. Because clay remains hard at room temperature, the special oven for clay is utilized to warm up until the core of clay becomes soft. Clay becomes soft by heating up in the oven at temperature 45°C or 60°C (it depends on what kind of clay to use). It is possible to apply / scrape the clay many times, so it is easy to change the shape and design of the clay model. Also, it is possible to use the Clay Shaper to recycle clay.

### **NS60L / NS45E**

NS Series does not contain any sulfur as filler (absolute sulfur free clay!), and NS Series can be incinerated without any problem. It is the new generation Industrial Clay. The weight of NS Series is 2/3 lighter than our sulfur based clay. There are two NS Series available: "NS60", whose working temperature is 60°C, and "NS45", whose working temperature is 45°C.

\*Please DO NOT mix the different types of clay due to the fact that the quality will be changed.





Product Name	Working Temp	*Hardness (25°C)	Specific Gravity	Odor	Billet Size	Mass	Unit (per box)
NS60L	60°C	82	1.00	Slightly	55 <i>φ</i> ×275mm	Approx 620g	15
NS45E	45°C	78	1.00	Non	55 <i>φ</i> ×275mm	Approx 620g	15

\*Measurement by ASKER Durometer Type C which is based on JIS K 7312. The data above is measured in January, 2016 \*The color of the clay here might not be the same as actual clay color.

### Why we have made Sulfur Free Clay

Industrial Clay is made from chemical and oil mainly used for industrial design and for automobile design.

Unlike regular clay, the hardness of the Industrial Clay remains hard at room temperature and becomes soft at 45°C or 60°C (it depends on what kind of clay to use) for model making.

We, TOOLS INTERNATIONAL Corp., hear each customer's voice and customize softness/hardness, elongation, stickiness, color, feeling of the Industrial Clay in order to respond customer's requests. Feeling of the Industrial Clay is the most important part because a clay modeler applies and scrapes the clay as 0.1mm level accuracy for finishing up the clay model. Industrial Clay is always expected to have properties with high quality performance and consistency of feeling.

Beside high expectation of the consistency of feeling, last few years, automobile makers strongly demanded Industrial Clay environmentally acceptable. Generally sulfur is used as filler for consistency of feeling for Industrial Clay. In order to have two complete opposite properties, which are environmentally friendly, and holds consistency of feeling, we reconsidered raw materials all over again. We compounded several hundred of raw materials to make sulfur free clay. We sent samples of the sulfur free clay to clay modelers each time for evaluation. Finally, we made the sulfur free clay, "NS Series," and now our Industrial Clay NS Series is widely used both domestic and overseas customers.

### **Property of Sulfur Free Clay**

### • Industrial Clay Consideration for Environment

Because NS Series does not contain any sulfur oxide, it is possible to use incinerator without smoke extraction apparatus to incinerate completely. Because NS Series can take this process, it is not necessary to landfill as industrial waste. In addition, NS Series is 30% lighter than sulfur based clay (Specific gravity of NS Series=0.97). As a result, carbon dioxide emission of transportation can be reduced.

### Industrial Clay Consideration for Model Studio

Because NS Series is light-weighed clay, handling of clay model becomes remarkably easier, and the safety for clay modelers at model studio would be improved. If model studio does not have an incinerator with smoke extraction apparatus, clay model has to be disposed of their facility for design confidentiality, and this process consumes time. For NS Series, it is possible to be incinerated without environmental problem and this will save time. Finally, odor of NS series is reduced compare to sulfur based clay. As a result, workability of NS series is improved.

### There is five kinds of NS60 series

Unlike other type of clay for automotive model making, Industrial Clay NS60L does not contain any sulfur as a filler (absolutely sulfur free clay!). Our NS60L is next generation, eco-friendly clay.

### Feature of NS60L

NS60L does not have problem for disposal as it does not contain any harmful materials.

NS60L does not shrink and holds the shapes.

NS60L does not crack.

 $\ensuremath{\mathsf{NS60L}}$  has excellent compatibility with our Clay Modeling Film.

NS60L has excellent feeling for model making.

NS60L has smooth feeling for applying onto the clay model when it is warmed up.

The feeling of the scraping using hand tools is fantastic.

Cohesion of NS60L is excellent. NS60L is the excellent clay for both hand making and machining.

### Instructions of NS60L

Heating temperature is 60°C to become soft and pliable.

The heating time is 3 hours using a clay oven.

NS60L does not need a heat gun to heat up the clay model surface for clay application.

\*DO NOT heat up NS60L over 60°C as the change in physical properties might occur and quality of NS60L would not be the same once it occurs.





Industrial Clay NS45E does not contain any sulfur as a filler (absolutely sulfur free clay). Our NS45E is next generation, eco-friendly clay. Feeling of NS45E is more viscous than NS60L.

### Feature of NS45E

NS45E does not have problem for disposal as it does not contain any harmful materials.

NS45E does not shrink and holds the shapes.

NS45E does not crack.

**NS45** 

NS45E has excellent compatibility with our Clay Modeling Film.

NS45E has excellent feeling for model making.

NS45E has smooth feeling for applying onto the clay model when it is warmed up.

The feeling of the scraping using hand tools is fantastic.

Cohesion of NS45E is excellent. NS45E is the excellent clay for both hand making and machining.

### Instructions of NS45E

Heating temperature is 45°C to become soft and pliable.

The heating time is 3 hours using a clay oven.

NS45E does not need a heat gun to heat up the clay model surface for clay application.

 $\star$ DO NOT heat up NS45E over 45°C as the change in physical properties might occur and quality of NS45E would not be the same once it occurs.







# Color variations

Product Name	*Hardness (25°C)	Specific Gravity
NS60L	82	1.00
NS60LG	82	1.00
NS60LF	82	1.00
NS60GWK2	82	1.00
NS60F2	78	1.00

★Measurement by ASKER Durometer Type C which is based on JIS K 7312. The data above is measured in January, 2016



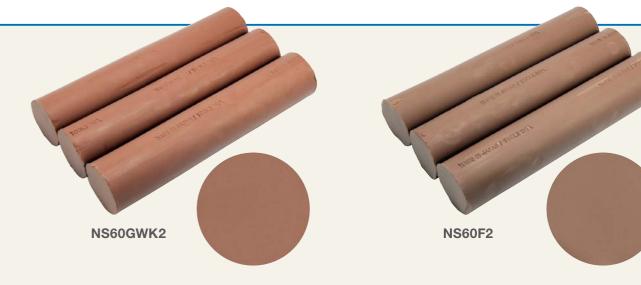












\*The color of the clay here might not be the same as actual clay color.



### **FAQ** for Industrial Clay



### 1. Where can I purchase clay?

On the last page of this catalogue, there is the list of our overseas distributors. If you are in one of those countries where our distributors are located, please contact them directly. If you are in the country where no distributor is located, please contact TOOLS INT'L Corp.

### 2 How should clay be stored?

### Storage conditions:

- The deterioration is facilitated more once the box is open.
- Please keep the boxes sealed when not in use.
- Please do not store under high temperature, humidity, and avoid direct sunlight.
- The appropriate temperature is under 25°C for storage.
- Once clay is out of box, we recommend that clay should be used as soon as possible in order to avoid the deterioration.

# Can Microwave Oven be used to warm up clay?

Do not use Microwave Oven to warm up clay. First of all, Microwave Oven can't set the temperatures of 45°C and 60°C. And with Microwave Oven, the core of clay gets warmed up. As clay gets warmed up, it expands its volume. As a result, if the core gets warmed rapidly with the surface being hard, it might cause the burst.

# What is the warming temperature for clay?

For NS60 Series, the components of oil and wax are designed to be warmed up at 60°C. The same principle is also applied to NS45 Series that is designed to be warmed up at 45°C. At the designated temperatures, each type of clay be warmed up and becomes soft properly to use. If warming up NS60 Series below or over 60°C and NS45 Series below or over 45°C, the change in physical properties might occur which is not preferable for these clays to use.

- Proper warming up time is 3 hours with the designated temperatures for each type of clay.
- Do not warm up these clays with less time with higher temperature.

# When applying clay, it is hot holding it in bare hands. Is there any preparation to be taken?

If applying clay with bare hands, low temperature burn on your skin may occur. We recommend to put on latex gloves or other similar type of gloves.

(shown on P.37)

# Is it possible to mix different type (or even the type with the same working temperature) together to use?

Each type (even the type with the same working temperature) has different properties. If mixing the different clays for use, after molding, there might occur the color inconsistency, cracking, peeling off etc. We do not recommend to do so.

# 7. Are there any precautions as to repairing and reapplying clay?

It is important that clay must be adhered well. In order to do so, you should be careful when you apply clay to make sure not to leave any air bubbles between applied clay and clay surface. If leaving any air bubbles, it might cause the crack. If possible, we recommend to use heat gun to warm up the surface before applying clay.

### 8. Is it possible to recycle (reuse) clay?

Yes, clay can be recycled and reused after kneading & deairing again through the clay shaper. Please note that if recycling clay mixed with garbage, the recycled clay will eventually lose its quality.

The recycled clay compared to brand new clay has the following characteristics and features:

- Physically, the recycled clay becomes harder, heavier, drier, and loses its stickiness.
- For the recycled clay, there is change in color which becomes darker than that of brand new clay.
- Practically, the standard recycling frequency is considered to be a few times at most. However, we do not have none to guarantee this standard recycling frequency.

# 9. After completion of clay model, how should it be painted?

Our product called "Clay Modeling Film" is the most effective way for coloring the model, the direct painting on the clay model is not unsuitable because the solvent in paint causes the clay surface to melt,

# 10. Can clay be disposed of by incineration?

Our clay "NS Series" does not contain any sulfur. Thus it is possible to be disposed of by incineration.

\*It is hazardous to dispose of any clay containing sulfur (even slightly) by incineration. We strongly suggest not to do so.

### **Clay Modeling Equipments**

The equipments that are built with reliability. If looking for reliable modeling equipments, please ask TOOLS

TOOLS INTERNATIONAL Corp has explored the field of several knowledge of the accumulation of development & production thorough R&D for design/modeling materials equipments Especially for the field of modeling equipment of production site at automotive R&Ds, we have held overwhelming reliability a results and with the demand made by designers and modelers, we continue to offer and supply the materials with high qualit



### Clay Oven & Clay Warmer

The main functions of Clay Oven & Warmer are to warm up and keep clays warm and soft. These equipments are installed at many of auto makers in the world and equipped with the several functions to keep the inside ideal environment.



Warmed up clay by Clay Oven & Clay Warmer



### **Clay Warmer PU-01**

The Warmer only for Industrial Clay.

The temperature setting for either 45°C or 60°C is just done by the switch. It is the portable size, but with its capacity, it can hold 15 billets at once. This capacity is for making a scale model. This warmer is more convenient, light-weighted and saving space.

Model: PU-01 Max capacity: 15 billets Number of trays: 3 Outer dimension: W450×H450×D410mm Preset temperature: 45°C/60°C with switch







### Clay Shaper

Extrusion and deairing machine only for Industrial Clay. Its use is to recycle once used clay. Once the chips or pieces of clay put into the shaper, the air bubbles and moisture are removed and molded with the vacuum. If the special die is used, it is possible to mold clay into various shapes for the certain part modeling.

Model: NSD-120 Overall length: 2120mm Overall width: 520mm Overall height: 1083mm Mass: 375kg Machine capacity: 80kg or 120kg/hour It depends on the type of clays.





### Rendering Board

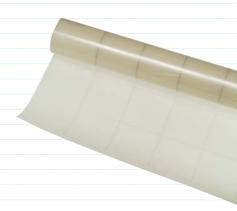
"Tape Drawing" must be done for the transfer from two dimension (marker sketch or rendering) to three dimension (actual model). In addition, this board is often used for the comparison evaluation of idea sketch and the final presentation.

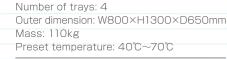


### Mylar Film with 100mm grid section

Milky-white color film with 100mm grid section for tape rendering and dimension measure using 217J Tape or IC Free Tape. Possible to write by pencil on the surface with grid.







Clay Oven DOAS-60 Feasible to warm up 60 billets of clay at once. Because the temperature set by the automated temperature control always keeps clays safely warm within the range of  $\pm 1^{\circ}$ C, it makes possible

to warm up the clay from clay surface to inner

core without irregularity. To be able to see inside,

the door is equipped with the reinforced pane of

glass. The trays inside oven are all stainless

made and no rust occurs, are easy to clean. The

safety precautions on leak interception, thermal

relay, overheating prevention and the tray fall

prevention measures are also taken.

Model: DOAS-60

Max capacity: 60 billets

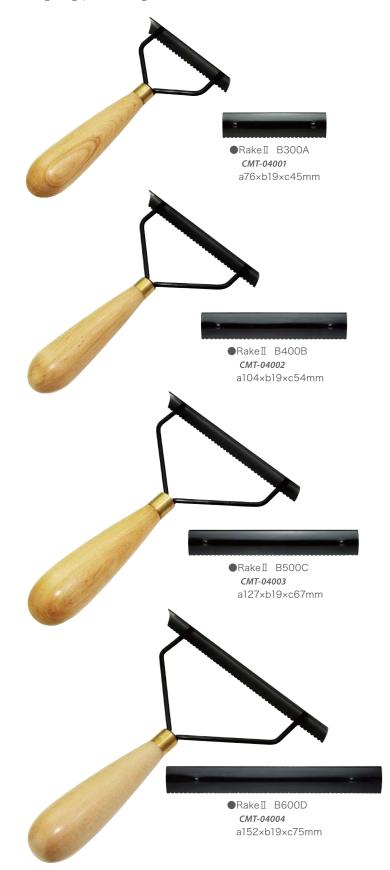


## **Clay Modeling Tools**

Various types of Clay Modeling Tools are used in clay modeling mainly for rough-scraping, detailed part, and finishing.

### [RakeII]

Rakes are tools for shaping the clay as you scrape it off. Primarily used for rough scraping. B-straight edge, C-curved edge.

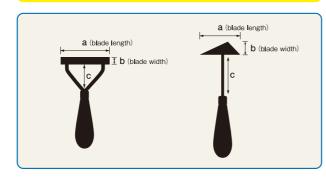




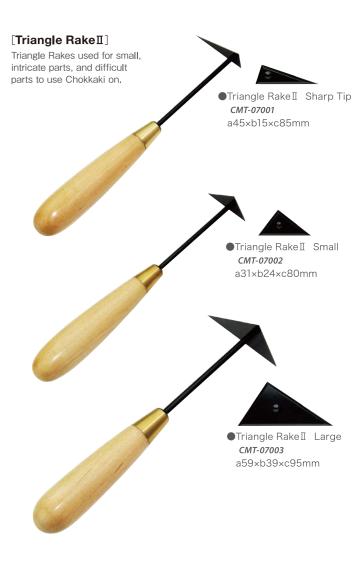


### CAUTION About the blade on Clay Modeling Tool

Each tool is not completely whetted. This is our idea that we would like our customers to use each tool in their favorite finishing condition and that it is our consideration of safety measure. Please acknowledge that Clay Modeling Tool is considered to be whetted by customers beforehand. (If lack of blade or deficiency on blade found, we will replace with new one)



[ChokkakiII]Chokkaki is for scraping off the clay into flat or slightly curved surfaces. Various sizes are used for rough scraping. Chokkaki is classified by the width in millimeters of the blade tip (50, 75, 100). The saw-blade Chokkaki's scraping resistance is low, so surface can easily be made smooth, ●ChokkakiI 50 CMT-01001 a52×b14×c54mm ●ChokkakiI 75 CMT-01002 a77×b14×c55mm ●ChokkakiI 100 CMT-01003 a100xb14xc64mm



### [FinisherII]

Finisher as the name suggests is used in finalizing shapes prior to using a steel. They vary in shape and size depending on the particular task that needs to be done. Used to finish off clay surface smoother after using Rake. ●FinisherⅡ E125C CMT-03001 a32×b9×c53mm ●FinisherⅡ E175B CMT-03002 a48×b16×c54mm ●FinisherⅡ E250A CMT-03003 a66×b19×c60mm

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### [Both Side Rake II]

Used for large inner curves.



### [Oval RakeII]

Oval Rake is used for creating round concave surfaces, carving narrow grooves, or for finishing off the radius of inner curves.



### [Hogger]

Hogger is used for digging or scooping deep inner curves.



### [WireⅡ]

Wire is used for scraping concave surface or making detailed parts as bended wire tools are attached. Available in various shapes and sizes.





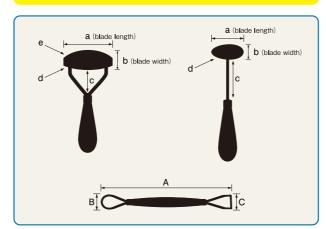






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### Mentori

Since Mentori extracts scraped powder which comes out from the back side of meshes (holes), the meshes (holes) do not get clogged so easily.

Special hardening finish processed & does not get rusty so easily. Made in Japan.



●Mentori Pocket 200 MT-200 Coarse Mesh 200mm×35mm×10mm 50g





●Mentori Z MT-330 Fine Mesh

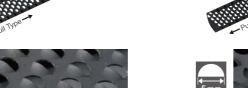








●Mentori 300 MT-300 Super Coarse Mesh 300mm×34mm×10mm 70g













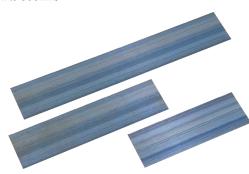


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### Steel

### [Steel]

Steel is used for smoothing surfaces shaped with rakes or for finishing changing surfaces so they are smooth. It is made of flexible steel sheets so that they can match the curvature of the surface to be scraped, and steel is essential tool finishing the clay surface. Sizes available from 150mm to 300mm.



Steel	#1501	CMT-17001	t0.1mm	a150×b50mm
Steel	#1515	CMT-17002	t0.15mm	a150×b50mm
Steel	#1525	CMT-17003	t0.25mm	a150×b50mm
Steel	#1504	CMT-17004	t0.4mm	a150×b50mm
Steel	#2015	CMT-18001	t0.15mm	a200×b50mm
Steel	#2025	CMT-18002	t0.25mm	a200×b50mm
Steel	#2004	CMT-18003	t0.4mm	a200×b50mm
Steel	#3004	CMT-19001	t0.4mm	a300×b50mm

\*t:thickness

### [Steel Band]

Steel Band can stick to the clay surface and is used as supplementary guides of templates and gauges.



●Steel Band *CMT-20001* t0.15mm 12.7mm×10m \*t:thickness







### **QSK 5 Steel**

### [QSK 5 Steel]

Excellent quality steel plate known as QSK 5 Steel can be used for multiple purposes. QSK 5 Steel can be cut into small pieces and can be made own ellipse shapes or any desired shapes. In addition, QSK 5 can be used as guideline on 1/1 full scale clay model because length is long enough and quality is hard enough. Various sizes are available. QSK 5 steel is a special steel strip (SK Steel) that is processed quenching. QSK 5 Steel's first letter Q stands for Quenching.

\*Delivery time takes about 1 month as this product is a build-to-order product.

Made in

Japan Quality

### 102mm Width Series

●t0.15mm	a1000×b102mm
●t0.15mm	a600×b102mm
●t0.2mm	a1000×b102mm
●t0.2mm	a600×b102mm
●t0.3mm	a1000×b102mm
●t0.3mm	a600×b102mm
●t0.4mm	a1000×b102mm
●t0.4mm	a600×b102mm
●t0.5mm	a1000×b102mm
●t0.5mm	a600×b102mm
●t0.6mm	a1000×b102mm
●t0.6mm	a600×b102mm
●t0.7mm	a1000×b102mm
●t0.7mm	a600×b102mm
●t0.8mm	a1000×b102mm

●t0.8mm a600×b102mm ●t0.9mm a1000×b102mm ●t0.9mm a600×b102mm

●t1.0mm a1000×b102mm ●t1.0mm a600×b102mm

\*t:thickness

### 75mm Width Series

●t0.15mm	a1000×b75mm
●t0.15mm	a600×b75mm
●t0.2mm	a600×b75mm
●t0.3mm	a1000×b75mm
●t0.3mm	a600×b75mm
●t0.4mm	a1000×b75mm
●t0.4mm	a600×b75mm
●t0.5mm	a1000×b75mm

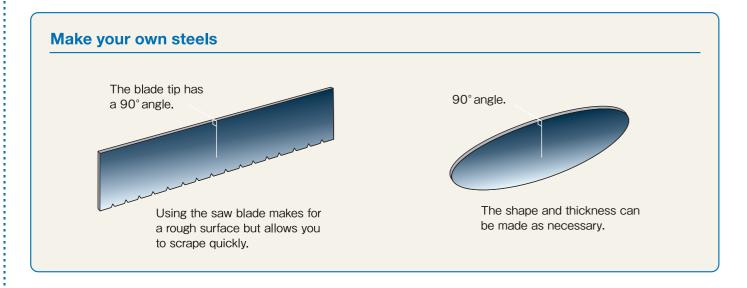
a600×b75mm

●t0.5mm \*t:thickness











### **Surform Tools**

Surform Tools are used of tidying up planes and surface edges. These are planes for scraping off clay, used in the stage before steel sheets. They are not suited for large surfaces, their grater-like blades come in many shapes, and the clips also differ accordingly.



### **STABA Former Gauge**

Former Gauge is used for replicating sectional shapes, such as for bodies and bumpers. They come in handy when you want to copy the form of the left side for use on the right side.







# This is the basic set of tools to begin What tools should be prepared? with for scale model. Surform Tools: Flat type Steel Band: 0.15mm×12.7mm×10m for rough scraping

### **DMT Diamond Whetstone**

Diamond hones are the most efficient and durable sharpeners you can own. Diamonds, which are made from the hardest crystal, to sharpen the blade faster than any type of conventional stone.

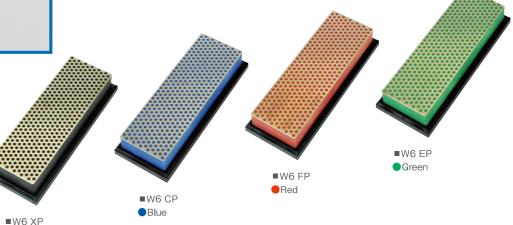


### **DMT Whetstone**

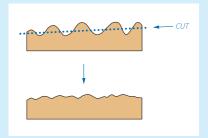
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The blade of Clay Modeling Tool has not got sharpened for safety reason. The blade needs to be sharpened before use.

Please sharpen the blade with whetstone before use.



### **Basic shaving process**







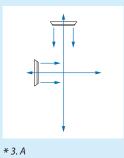
\* 2. Use the saw edged end.

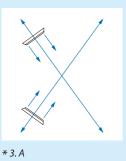
### 1. Shaving.

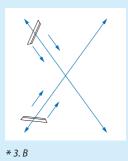
With the use of the blade face, scrape the large rugged surface of the clay to achieve an overall smoothness.

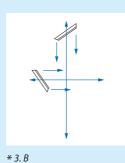
### 2. Rough shaving.

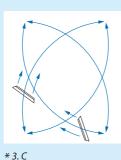
With the use of the saw edged end of the rake the basic shape should be formed. It is advisable to move the rake in random direction in order to achieve the best result.











### 3. Steps for rough shaving.

- A: A large area can be shaved off by setting the rake at a 90° angle against the pulling direction. This is favorable during the early stage of surface treatment.
- B: A steady sway of the rake can be achieved by inclining the rake to tilt against the direction of the pull. At the same time a more increased slanted shave becomes possible.
- C: More steady shaving can be achieved by pulling the rake to draw a curved line and inclining it into a tilt.

  This will, however, decrease the amount being shaved, but the condition of the surface will improve.

### 4. After the surface treatment of rough shaving, we come onto the process known as the mid-finish.

The use of a finisher will produce a much finer surface. At this stage the surface should be ready for work on the actual modeling.

Try to hold the tool lightly and give light touch to the shaving during the process of the mid-finishing (it is important for the blade to cut well).

Avoid pushing the tool too hard in order to achieve a good quality of the clay's surface.

Effective ways of handling the tool during this process are: A: Grip it lightly and give light touches to the shaving.

B: It should be gently placed on the surface and move.

C: The tools should be move in random directions.

NB: The surface of the clay will end up with wavy lines if the surface finishing process is carried out too swiftly while the surface is still rough.

### **Methods for sharpening CLAY MODELING TOOLS**





\* Prepare sandpaper beforehand.

### 1. Rough sharpening process

Set the blade angle with grit #240 (very fine). It is easy to keep the blade at a certain angle if the tool is placed at a 45° angle for sharpening and then moved up and down.

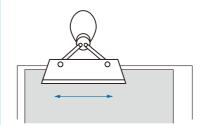
### 2. Intermediate sharpening process

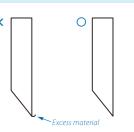
Blade face production with grit #600 (super fine). The blade face is sharpened with #600 in the same style as above. A small amount of oil will be needed.

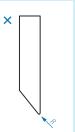
### 3. Finishing sharpening process

Blade finishing with grit #1000 (ultra fine). The blade face should be sharpened as in #1000 for completion. A small amount of oil will be needed.









### 4. Back-sharpening process

In the case of #600, sharpen from one end to the other and back. In the case of #1000, sharpen from one end to the other and back, and then repeat once only. The process of back-sharpening is carried out to remove the excess material created on the back of the blade after the front of the blade has been sharpened. \* Without the back-sharpening process, the blade will not serve its duty as it will not cut well.

\*This process should not be repeated more than twice as excess sharpening will produce an R on the back of the blade and make it blunt.





### 5. Edge sharpening process

When the blade is rubbed against the surface of the superfine paper rather lightly, the surface of the blade will resemble a mirror — back-sharpening once only (lightly). The blade will cut well after this stage. The quality of the finish will depend on how well the blade cuts.

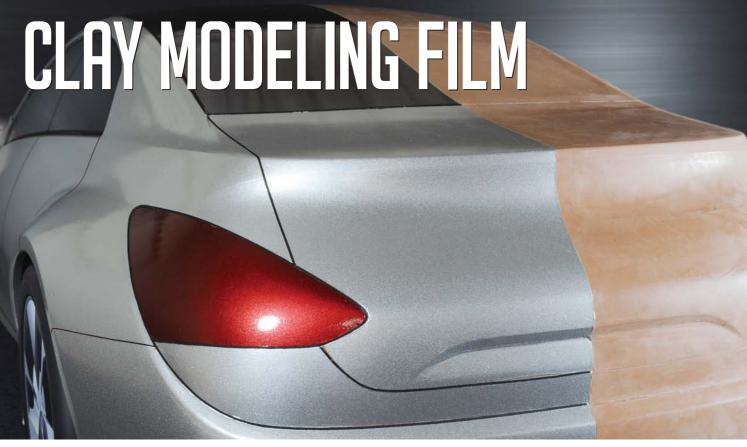
Testing the sharpness of the blade — as the pictures on the left indicates, one can easily test the sharpness of a blade by placing a thumb on the sharp edge of the blade and giving a light flick towards oneself.

\* Injuries will occur if the finger is moved sideways.

### **Clay Modeling Film**

The series of Clay Modeling Film, originally developed by TOOLS INTERNATIONAL Corp, which is mainly used for the shape confirmation of exterior/interior, checking highlights, and qualification studies in clay model fabrication process.





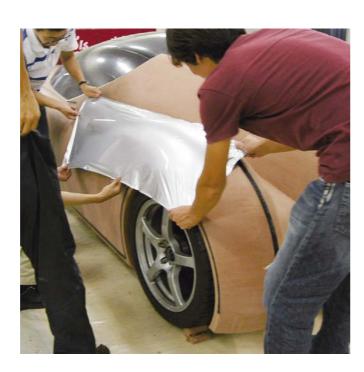
**Features of this product** 

Clay Modeling Film is the product mainly developed to be used for modeling and fitting. Especially for the model made by industrial clay, Clay Modeling Film is primary pasted on clay surface and used for surface hi-light checking. The model is expressed and comes much closer to the reality fitting with this product. For Clay Modeling Film, because pre-applying paint or using solvent is unnecessary, it is good for the environment and can be pasted on and peeled off the clay surface easily. The detailed parts of model can also be checked and modified easily. In addition, because the watered glue is used for adhesion, the adjustment of pasting can be easily done.

% As for Clay Modeling Film Clear, unlike colored Clay Modeling Film, applying the paint (organic solvent) is necessary beforehand.

### **Use of Clay Modeling Film**

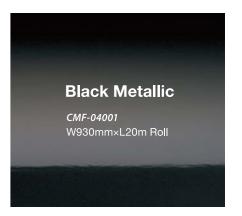
- · For modeling and fitting done by Industrial Clay
- For modeling and fitting done by resin model
- For other applicable modeling and fitting



### Clear

CMF-01001 W930mm×L30m Roll

















Example for use of Clay Modeling Film Clear



Example for use of Clay Modeling Film Red



Example for use of Clay Modeling Film Silver



Clay Modeling Film Black-M

### ■ Clay Modeling Film Clear

It is clear transparent film. Paint the surface of film with the lacquer type paint. After applying the paint and the film gets softened by the paint, soak the film in water and peel off the back paper, then apply the film on clay surface.

### ■Colored Film

It is colored film frequently used on the production site. You do not have to paint the surface and can use it as is. After soaking the film in water and peeling off the back paper, then apply the film on clay surface.

If clay surface is water-sprayed beforehand, the adjustment of the position of application can be done easily and is convenient. You can gently remove the air bubbles and moisture with a rubber spatula and apply the film on clay surface with wiping moisture with paper cloth. The finish even comes out nicely if wiping off all water marks and drops of water with paper cloth.

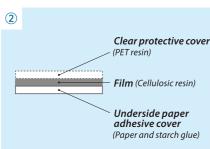
### How to use a Clay Modelling Film

### ■ How to set up the colour type

The surface protective film (clear polyester resin) has to be peeling off the surface before soaking the clay modelling film into water or tepid water. The absorbent backing paper will come off in a few minutes, then putting up the film to the clay. First moisten the surface of clay by spraying with water, to make it possible to easily adjust the position during working and it will be able to get a finely finished surface. Let the releasing of water and foam generated in the surface with a rubber spatula or squeegee, then it adhere to the surface and wipe away the water with a cloth.



Cut a modelling film slightly larger than the shaped clay model.



The Clay Modelling Film is a surface protective film, modelling film, absorbent backing paper of three layered structure.



A protective film (clear polyester resin) is removed from the substrate film before first use



Soak the face of absorbent backing paper into the poured water tray.



Consequently, it is possible to easily confirm the soaking wet conditions.



Soak the modelling film completely below the water, slightly push it back into place.







After soaking for a few minutes, the modelling film and absorbent backing paper will peel off easily either.





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Pulling up either edge of the film, then turn the face of the film.





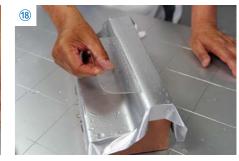




First moisten the surface of clay by spraying with water, then covering the film to the clay model carefully.







Adjust the film position, releasing of water and foam generated in the surface and clearance corner with a rubber spatula or squeegee, then it adhere to the surface and wipe away the water with a cloth.











(A)

Cut out the extra edge carefully while wet with water. When the film is dried up, it becomes adheres to the surfaces between the film and paste. It is very difficult to cut out the film.

To finely finish the side edge of the film with a spatula.



### **FAQ** for Clay Modeling Film



# 1. Is Clay Modeling Film adhesive type sheet?

Yes, it is an water based adhesive backed membrane.

# 2. What is the use of Clay Modeling Film?

The film is specifically used for checking highlights of a clay model, or for qualification studies and presentation models.

# What is the shelf life of Clay Modeling Film?

If storing under appropriate condition, its shelf life can last over one year so there is no need to use it immediately.

### 4. Where should it be kept for storage?

It should be kept in cool, less humid place without direct sunlight. If stored under conditions such as place with high humidity and direct sunlight, the shrinkage of film and color change might occur.

### 5. Is "try-out" necessary?

No, but we recommend to do so before the actual fitting. That way, we think that you can understand more about the function and specific characteristics of this product.

# What are the least necessary tools prepared for Clay Modeling Film?

The basic tools you need are cutting tools such as scissors, or cutter to cut the film, a receptacle or a vat to soak the film into, a water sprayer, a rubber or plastic spatula to push out air and water between the model surface and the film, and towels or paper cloth to wipe.

# 7. Is Clay Modeling Film "Clear" needed to be painted prior to using?

Yes. Please make sure to apply the paint as organic solvent on the surface of film. Without pre-painting applied, the film "clear" does not stretch at all. It becomes elastic by the effect of organic solvent.

# 8. How long should the film be soaked into water?

The time of soaking the film in the water will vary depending on the size of film and environmental condition. The standard soaking time is as sliding the edge of underside paper adhesive cover and it slides smoothly, then it is ready to use.

# 9. Should the water for soaking film be changed often?

Yes, if using the same water to soak film for many times, glue left in the water might cause the discoloration on the surface of film after pasting in the clay surface. Thus, we recommend to change the water often.

# What is the scale size printed on the underside paper adhesive cover? How is it used?

Thin line: 100mm plotting (50mm scale mark)
Thick line: 500mm plotting

The scale mark will be helpful as cutting the film. In addition, it will be easy to see and adjust the film direction with the scale mark before pasting the film on the clay surface.

# 11. Is the water used for soaking the film harmful?

No. It is just water mixed with starch glue. The water can be disposed of normally.

### 12. Can Clay Modeling Film be reused?

We do not recommend to do so. For if reusing the film, the most of glue on the film be removed from film itself after first use and most likely glue will not be left and can not be pasted properly on the clay surface.

### **Modeling Check Foil**

Aluminum foil for highlight checking & model mock-up.

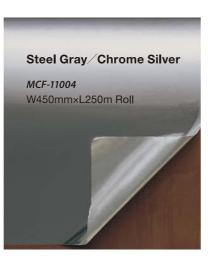
Used to check imbalance of clay model surface. Durability lasting longer and reusable (2 or 3 times). In addition, often used for alternative fitting for simple coating parts.













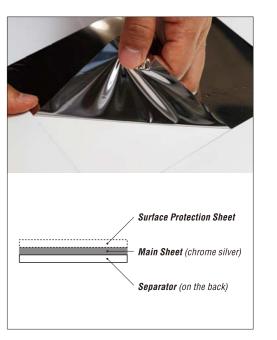
### **Modeling Sheet Chrome Silver**

Mainly used in the particular chrome parts such as a door handle, a reflection side of headlight housing, and console parts for modeling expressions.

Even stretching this super-ultra thin sheet to certain extent, it will not cause the white-making or loss of gloss and this sheet can keep the feeling of chrome quality.



●5M MSC-14001 W540mm×L5m Roll





### **Spatula for Modeling Film**

●SH type 100×80mm



### **Rubber Spatula**

Rubber spatula used for applying Clay Modeling Film onto a clay model.

### [Double edge blades type]

●A-1 W25×L73mm

•A-2 W50×L67mm

●A-3 W75×L67mm

●A-4 W100×L73mm





### [Single edge blade type]

●B-1 W50×L59mm

●B-2 W75×L59mm

●B-3 W95×L59mm



### [Right angle & irregular R]

●C Type W70×L100mm One side blade



### Ellipse Shape Rubber Spatula

As a shape is ellipse, it can be used for smoothing clay model surface.



●2254-540 Hard type t4mm×75mm \*t:thickness



### **Rendering/Modeling Tape**

### **IC Free Tape**

Free curve tape based on crepe tape. Because it is soft adhesion, this tape can be easily reapplied. Its length is 16m/roll with case (plastic case) and without case (packed in paper box).

7 available colors

(Black, Red, Blue, Yellow, White, Grey, and Light Green)

\*Only black available by 10rolls/set.
Other colors available by 20rolls/set.

### With case



### length 16N

	Black	Red	Blue	Yellow	White	Grey	Light Green
0.4mm	•	•	•	0	0		•
0.5mm	•			0	0		
0.6mm	•			<u> </u>	0		
0.7mm	•			0	0		
0.8mm	•	•		0	0		
1.0mm	•			0	0		
1.2mm	•			0	0		
1.5mm	•	•		0	0		
1.6mm	•	•		0	0		
2.0mm	•			0	0		
2.5mm	•			0	0		
3.0mm	•	•		0	0		
4.0mm	•	•		0	0		
5.0mm	•	•	•	0	0		

### Without case



0.5mm/1.0mm/1.5mm/2.0mm/3.0mm/4.0mm/5.0mm 6.0mm/8.0mm/10.0mm/12.0mm/15.0mm/25.0mm

### **IC Mat Tape**

The tape for drawing the straight line. Mirror surface (Gold/Silver) line tape with adhesion. Its length is 8m.

8 available colors

(Black, Autumn Red, Deep Blue, Yellow, Moss Green, White, Silver, and Gold)

\*Only black available by 10rolls/set.
Other colors available by 20rolls/set.

### With case



### length 8M

0.5mm		Black	Autumn Red	Deep Blue	Yellow	Moss Green	White	Silver	Gold
2.0mm	0.5mm	•	•	•	0	•	0		
3.0mm • • • • • • • • • • • • • • • • • •	1.0mm	•	•	•	<u> </u>	•	0		
4.0mm • • • • • • •	2.0mm	•	•		<u> </u>	•	0		
	3.0mm	•			0	•	0		
5.0mm • • • • • • • • • • • • • • • • • •	4.0mm				<u> </u>		0		
	5.0mm	•	•	•	0	•	0		

### Without case

0.5mm/1.0mm/2.0mm/3.0mm/4.0mm 5.0mm/6.0mm/8.0mm/10.0mm/12.0mm

\*The minimum order quantity and width for colours, Please feel free to contact us.

### **3M Fine Line Tape**

Used for complicated masking parts and stripe. Suitable for direct paint. Heat resistant.

### length 54.8

#6306 w 1.6mm #6300 w 3.2mm #6301 w 6.4mm

#6303 w 12.7mm



\*Please do not keep it in the place under high temperature and humidity. Even if air seen in the tape between, it is no problem for use.

<sup>\*</sup>The minimum order quantity and width for colours, Please feel free to contact us.

### **KAMOI** Washi Tape No.220 series

Tape made from Japanese rice paper.

Useful for plotting of key line drawings or shape adjustment while working on clay modeling.

9 colors available

(White, Brown, Yellow, Orange, Pink, Red, Green, Dark Blue, Black)

Size	Unit
w 3mm	400 roll
w 4mm	300 roll
w 5mm	240 roll
w 6mm	200 roll
w 7mm	170 roll
w 8mm	150 roll
w 9mm	120 roll
w 10mm	120 roll
w 11mm	110 roll
w 12mm	100 roll
w 13mm	90 roll
w 14mm	80 roll
w 15mm	80 roll
w 16mm	80 roll
w 17mm	70 roll
w 18mm	70 roll

Size	Unit
w 19mm	60 roll
w 20mm	60 roll
w 21mm	60 roll
w 22mm	50 roll
w 23mm	50 roll
w 24mm	50 roll
w 25mm	50 roll
w 26mm	40 roll
w 27mm	40 roll
w 28mm	40 roll
w 29mm	40 roll
w 30mm	40 roll
w 40mm	30 roll
w 50mm	20 roll
w 100mm	10 roll



### **KAMOI Tape Silver & Chocolate**

Tape made from Japanese rice paper. Basically, the same use as KAMOI No.220 series, but the adhesion is bit stronger than KAMOI No.220 series.



length 15M	
Size	

Size	Unit
w 6mm	160 roll
w 10mm	96 roll
w 12mm	80 roll
w 15mm	64 roll
w 18mm	56 roll
w 20mm	48 roll
w 24mm	40 roll
w 25mm	40 roll
w 30mm	32 roll
w 40mm	24 roll
w 50mm	16 roll
w 100mm	8 roll

\*Order for this tape based on after receiving purchase order. The delivery time takes about a few weeks for international customers.

### **RINREI Brown Tape**

Tape made from Japanese rice paper. Useful for putting this tape to sill or bumper part of the clay model to quickly modify the line before changing the actual design. 3 sizes are available.



Size	Unit				
w 5mm	240 roll				
w 10mm	120 roll				
w 20mm	60 roll				
w 30mm	40 roll				

\*Order for this tape based on after receiving purchase order. The delivery time takes about a few weeks for international customers.

### **Rendering Tape 235**

This matte black paper tape are use of tape rendering on full size or small scale model, a tape base material made of crape paper. It makes it easy to follow and stick on the flexible curve. It can be also use of cutting guideline for clay model.



### **Rendering Tape 217J**

A semi matte black paper tape, a tape base material made of crape paper. It makes it easy to follow and stick on the flexible curve. For the purpose of use as same as the 235 tape. The adhesiveness and a base material is a bit stronger, a thicker and a glisten than the 235.







Regular Size	Unit
w 3mm	1 roll
w 5mm	1 roll
w 7mm	1 roll
w 9mm	1 roll
w 12mm	1 roll
w 19mm	1 roll
w 25mm	1 roll
w 50mm	1 roll

Specal Size	Unit
w 6mm	100 roll
w 8mm	75 roll
w 10mm	60 roll
w 15mm	40 roll
w 20mm	30 roll
w 30mm	20 roll
w 40mm	15 roll
w 100mm	6 roll

Regular Size	Unit
w 3mm	1 roll
w 5mm	1 roll
w 7mm	1 roll
w 9mm	1 roll
w 12mm	1 roll
w 19mm	1 roll
w 25mm	1 roll
w 50mm	1 roll

Specal Size	Unit
w 4mm	96 roll
w 6mm	65 roll
w 8mm	50 roll
w 10mm	40 roll
w 15mm	26 roll
w 20mm	20 roll
w 30mm	13 roll
w 40mm	10 roll
w 100mm	4 roll

\*Please do not keep it in the place under high temperature and humidity. Even if air seen in the tape between, it is no problem for use.

<sup>\*</sup>Order for this tape based on after receiving purchase order.

The delivery time takes about a few weeks for international customers.

### Vinyl Tape SPV202 for model checking.

Suitable for shape or highlight checking of clay model, hard model, and metal mold.





### length 30M

Size	Unit
w 10mm	240 roll
w 50mm	48 roll
w 75mm	24 roll
w 100mm	24 roll
w 150mm	12 roll
w 200mm	12 roll
w 300mm	12 roll

Soft vinyl tape is used as material.



Vinyl Tape No.312 for model checking.

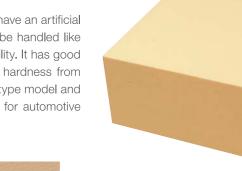


### length 30M

Size	Unit
w 50mm	36 roll

### **RAKU-TOOL** [Chemical Wood]

RAKU-TOOL (Chemical Wood) is made mainly from polyurethane to have an artificial wood like characteristic. As a name chemical wood implies, it can be handled like actual wood, and because of no wood grain, it has excellent workability. It has good adhesiveness and can be painted well. RAKU-TOOL has different hardness from hand working to NC machining, and it can be used as making prototype model and confirmation of a shape of a model. RAKU-TOOL has been used for automotive makers all over the world for model making.



SB-0240

For hand process Specific gravity 0.24g/cm<sup>3</sup> Styling & Design model



For hand process and NC process Specific gravity 0.47g/cm³ Styling & Design model



For NC process
Specific gravity 0.60g/cm³
Styling & Master model

●SB-0240 W1500mm×D500mm×H100mm
W200mm×D200mm×H100mm
W200mm×D200mm×H47mm

●SB-0470 W1500mm×D500mm×H100mm
W200mm×D200mm×H100mm
W200mm×D200mm×H50mm

●SB-0600 W1500mm×D500mm×H100mm
W200mm×D200mm×H100mm
W200mm×D200mm×H50mm







Example of cutting process of the RAKU-TOOL

### **Hard Urethane Foam**

This is the hard foam in the cubic shape which is mainly used in the areas of work such as Product, Clay Model, Surfboard Repair, and Master Model. Easy to process with a cutter or graver. It excels heat/thinner resistance, colorability, abrasion resistance. Fine texture and very light much like

- W2000mm×D1000mm×H300mm ●#80
- ●#80 W400mm×D400mm×H100mm
- W247mm×D247mm×H100mm
- W197mm×D197mm×H100mm







### **EPS BLOCK** [High Density Styrene Foam]

The hardness varies with foaming magnification. The lower the number on foaming magnification goes, the harder it gets. Foaming magnification #60 is suitable for the armature of clay model.



Foaming Magnification #60, #50, #40, #30 W2000mm×D1000mm×H500mm Meter Size

W1830mm×D 925mm×H440mm

●3×6 Size

### **ACHILLES FM50**

EPS Block most of Auto R&D generally use. Foaming magnification is #20.



Foaming Magnification #20 ●3×6 Size W1830mm×D925mm×H200mm

### **Adhesive for Multiple Purposes**

Strong adhesiveness for multiple materials such as styrene foam, metal, plastic, wood, and concrete.





●120ml

### Styroace II

Fine texture, thin, blue extrusion process polystyrene foam. Durable with pressure and it does not change when soaking into water.



Size 600×900mm

- ●Thickness 20mm
- ●Thickness 25mm
- ●Thickness 30mm
- ●Thickness 40mm
- ●Thickness 50mm
- ●Thickness 75mm
- ●Thickness 100mm

### **Black Core**

Black foam board putting black paper with aluminum foil. Useful for multiple purposes.



Size 910×1820mm

- ●Thickness 5mm
- ●Thickness 7mm

### Styrofoam FIII

Extrusion process polystyrene foam with ultrafine texture.

### **Model Board**

Styrene foam board with pure white craft paper on both side surfaces.

Size 900×1800mm

●Thickness 5mm

●Thickness 7mm



Size 600×900mm

●Thickness 100mm

### **Black Board**

Black foam board. It is a light weight and suitable for display, presentation mount board, backboard, photography backgrounds, hobby.



Size 900×1800mm

- ●Thickness 5mm
- ●Thickness 7mm

Size 841×1189mm

●Thickness 5mm ●Thickness 7mm

Size 728×1030mm

- ●Thickness 5mm
- ●Thickness 7mm

Size 594×841mm

- ●Thickness 5mm
- ●Thickness 7mm

**Instant Panel** 

Size 800×1100mm

●Thickness 1mm

●Thickness 2mm

●Thickness 3mm

●Thickness 5mm

●Thickness 7mm

Too Corp's original Styrofoam board for presentation and panel making.



B1 760×1080mm

- ●Thickness 5mm
- ●Thickness 7mm

B2 540×760mm

- ●Thickness 5mm
- ●Thickness 7mm

B3 380×540mm

●Thickness 7mm

A1 605×910mm

●Thickness 5mm

●Thickness 7mm

### **Profoam Cutter**

The cutter machine with heat rays only for styrofoam, styrene foam.

### **Profoam Cutter**

- Size: W400×D300×H250mm
- Accessory: T Ruler/Guide for angle adjustment/Nichrome wire  $(0.14 \times 5 \text{m})$
- ■T Ruler for Profoam Cutter
- Guide for angle adjustment for Profoam Cutter
- Nichrome wire 5m for Profoam Cutter





### **Profoam Cutter L**

- ■Size: W450×D300×H357mm
- Accessory: T Ruler (with Protractor) /R Ruler for circle cut/Nichrome wire (0.23×30m)
- ■T Ruler for Profoam Cutter L, Precise T Ruler (with Protractor)
- ■R Ruler for Profoam Cutter L, for circle cut
- Nichrome cutter for Profoam Cutter L, Nichrome wire 30m in reel





### **3M Abrasive Sponge**

Resilient grinding material with grind grains on it. 114×140mm.



- ●No.5081 Medium Grain Size #120~180 (10pcs)
- ●No.5082 Fine Grain Size #240~320 (10pcs)
- ●No.5083 Super Fine Grain Size #320~600 (10pcs)
- ●No.5084 Ultra Fine Grain Size #800~1000 (10pcs)
- ●No.5085 Micro Fine Grain Size #1200~1500 (10pcs)

# 3M Filtering Mask No.8000J DS1

Avoid the user to inhale the fiber of glass cloth, and other dusts.



●50 pieces

### **Hand-Wash Brush**

This brush can be used for removing clay shavings from finger nails and fingertips easily.



### **Antistatic Brush**

Acrylic conductive fiber made brush for preventing attaching dust.



●145mm ●300mm

### **Palm Fit Gloves**

These gloves have excellent fitting feeling, which feel like applying clay by bare hands.



Medium 10 pairs/setLarge 10pairs/set

# Kimwipe S-200 (Paper Cleaning Cloth)

Suitable to wipe the microdust such as caring for delicate surface or precision measuring equipment.



●Size120×215mm 1box 72pcs (200 Sheets/pcs)

### **Joint Spatula**

Can be used to peel off clay scrap on studio floor or stool.



● Small W100×L210mm ● Medium W160×L210mm ● Large W210×L230mm

### **Metal Tool with Handle**

Metal spatula suitable for painting or resin kneading. Usable for unsticking scrap clay on the floor or stool.



●Type45 W45×L250mm ●Type75 W75×L295mm

●Type105 W105×L345mm

### **COPIC Sketch (358 Colors)**

COPIC with Super Brush and Medium Broad nibs in twins.

Huge hit item for comic industries.

- Single 358 Colors
- Original (Empty Marker)
- ●Basic 12 Colors
- ●12 Color EX-1 Set
- ●12 Color Ex-2 Set
- ●12 Color Ex-3 Set
- ●12 Color EX-4 Set
- ●12 Color EX-5 Set
- ●12 Color EX-6 Set
- ●12 Color Warm Gray Set
- ●12 Color Cool Gray Set



● Basic 24 Colors

● Basic 36 Colors

●72 Color Set(A)

●72 Color Set(B)

●72 Color Set(C)

●72 Color Set(D)

●72 Color Set(E)





V09         RV11         R08         YR04         Y13         YG03         G17         B14         B29         B39         E09         100           ●12 Color EX-1 Set										

■12 Color Ex-2 Set

12 60101 24-2 361											
V93	RV93	R83	YR15	YR82	Y18	BG72	BG75	BG78	B69	E17	E18

●12 Color Ex-3 Set

BV01	RV00	R01	R21	YR01	YR12	G03	B66	E0000	E30	E42	E70
●12 Color EX-4 Set											
_								DC0000			M 0

●12 Color EX-5 Set		

V20 V25 RV55 RV63 RV66 YR30 YG61 BG53 BG70 E23 E81 E87

●12 Color EX-6 Set											
BV34	V22	V28	RV52	R56	YR27	G43	G46	BG57	BG90	E84	E89

●12 Color Cool Gray Set

C-00	C-0	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	C-9	C-10

●12 Color Warm Gray Set

W-00	W <b>-</b> 0	W-1	W <del>-</del> 2	W-3	W-4	W <b>-</b> 5	W <b>-</b> 6	W <b>-</b> 7	W <b>-</b> 8	W <b>-</b> 9	W-10
<b>■</b> Daa	:- 24	Calana									

B24 E000 E01 E17 E21 E33 E47 E51 C-1 W-2 0 100

BV02 V17 RV11 RV25 R00 R27 R39 YR04 Y00 Y35 G07 B00

●Bas	sic 36	Colors	;								
V09	RV11	RV29	R02	R08	YR04	YR24	Y11	Y13	Y15	YG03	G07
G17	G21	G28	B05	B06	R1/	B20	B32	B30	Eng	E20	E33

C-1 C-3 C-5 C-7 C-9 W-1 W-3 W-5 W-7 W-9 100 110

■72 Color Set(A)

- 12 Color GCL(1)														
BV08	V04	V06	V09	RV04	RV09	RV11	RV19	RV29	R02	R08	R27			
R32	R37	YR00	YR04	YR07	YR09	YR14	YR23	YR24	Y02	Y06	Y11			
Y13	Y15	Y21	Y26	YG03	YG13	YG91	YG95	G07	G16	G17	G21			
G28	G99	BG09	BG10	BG15	BG18	B01	B05	B06	B14	B23	B26			
B29	B32	B34	B37	B39	E09	E15	E29	E33	E37	E44	E49			

C-1 C-3 C-5 C-7 C-9 W-1 W-3 W-5 W-7 W-9 100 110





### Spare Nib for COPIC Sketch

Spare Nib for COPIC Sketch, Using tweezer for replacement.

Super Brush(3pcs/set)





### ●72 Color Set(B)

		(-,									
BV00	BV04	BV23	BV31	V12	V15	V17	RV06	RV21	RV34	R20	R24
R29	R39	R59	YR02	Y00	Y08	Y17	YG07	YG11	YG17	YG41	YG67
G00	G02	G05	G12	G14	G29	G85	BG02	BG11	BG13	BG32	BG45
BG49	B00	B02	B12	B18	B21	B24	B41	B45	E00	E02	E04
E07	E11	E13	E21	E31	E35	E39	E40	E41	E43	E51	E57
C-0	C-2	C-4	C-6	C-8	C-10	N-1	N-3	N-5	N-7	N-9	0

●72 Color Set(C)

RV02	RV10	RV13	RV14	RV17	RV25	RV32	R00	R05	R11	R17	R35
YR16	YR18	YR21	Y19	Y23	Y38	YG01	YG05	YG09	YG21	YG23	YG25
YG45	YG63	YG97	YG99	G09	G19	G20	G24	G40	G82	BG05	BG34
BG99	B04	B16	E00	E19	E25	E27	E34	E53	E55	E59	E77
N-0	N <b>-</b> 2	N-4	N-6	N-8	N-10	T-0	T-1	T-2	T-3	T-4	T-5
T-6	T-7	T-8	T-9	T-10	W-0	W-2	W-4	W-6	W-8	W-10	100

●72 Color Set(D)

BV000	BV02	BV11	BV13	BV17	BV20	BV25	BV29	V01	V05	V91	V95
V99	RV23	RV42	R000	R12	R14	R22	R30	R43	R46	YR000	YR20
YR31	YR61	YR65	YR68	Y04	Y28	Y32	Y35	YG00	YG06	YG93	G94
BG01	BG07	BG23	BG93	BG96	B000	B28	B52	B60	B63	B79	B91
B93	B95	B97	B99	E000	E01	E08	E47	E50	E71	E74	E79
E93	E95	E97	E99	FRV1	FYR1	FY1	FYG1	FV2	FYG2	FBG2	FB2

●72 Color Set(F)

		001(=)									
BV0000	BV01	BV34	V0000	V000	V20	V22	V25	V28	V93	RV0000	RV000
RV00	RV52	RV55	RV63	RV66	RV69	RV91	RV93	RV95	RV99	R0000	R01
R21	R56	R81	R83	R85	R89	YR0000	YR01	YR12	YR15	YR27	YR30
YR82	Y0000	Y000	Y18	YG0000	YG61	G0000	G000	G03	G43	G46	BG0000
BG000	BG53	BG57	BG70	BG72	BG75	BG78	BG90	B0000	B66	B69	E0000
E17	E18	E23	E30	E42	E70	E81	E84	E87	E89	C-00	W-00





### COPIC Ciao (180 Colors)

For first time user of COPIC marker and the reasonable price is set.

Quality of drawing feeling and color is the same as COPIC Sketch.

- Single 180 Colors
- ●12 Color Set
- ●24 Color Set
- ●36 Color Set(A)
- ●36 Color Set(B) ●36 Color Set(C)
- ●36 Color Set(D)
- 36 Color Set(E)



●72 Color Set(A)

●72 Color Set(B)

### **Clear Plastic Case**

12 Color 24 Color 36 Color 72 Color

● For COPIC Sketch	0	0	0	0
● For COPIC Ciao	0	0	0	0
● For COPIC	0		0	0
• For COPIC Wide & Various Ink 24 Co	lor	0		







● 36 Color Set(C)														
BV13	BV23	BV31	V000	V06	RV000	RV06	RV13	R00	R05	R11	R22			
YR16	YR23	YR31	YR61	Y11	Y15	Y21	YG00	YG23	YG63	G000	G07			
G14	BG05	BG34	B02	B12	B60	B63	E11	E31	E50	E53	E71			

●36 Color Set(D)

BV17	BV29	V15	V91	V95	RV34	RV95	R17	R35	R37	R46	R85
YR68	Y28	Y38	YG91	YG95	G28	G85	G94	BG49	BG96	B45	B93
B95	B97	E43	E49	E57	E77	E93	E95	W-1	W <b>-</b> 3	W <b>-</b> 5	W <b>-</b> 7

●36 Color Set(E)

BV000	BV25	V01	V05	RV14	RV69	R000	R14	R81	YR000	YR15	Y000
Y35	YG09	YG17	G29	G82	BG000	BG13	BG72	B000	B18	B28	B99
E000	E15	E18	E25	E40	E41	E59	E79	C <b>-</b> 0	C <b>-</b> 2	W <b>-</b> 0	W <b>-</b> 2

●72 Color Set(A)

BV00	BV02	BV04	BV08	V04	V09	V12	V17	RV02	RV04	RV10	RV21	
RV23	RV29	RV42	R02	R20	R27	R29	R32	R59	YR00	YR02	YR04	
YR07	YR20	Y00	Y02	Y06	Y08	Y17	YG03	YG06	YG11	YG41	YG67	
G00	G02	G05	G17	G21	G99	BG01	BG09	BG10	BG15	BG23	BG93	
B00	B05	B23	B24	B29	B32	B39	E00	E02	E04	E08	E21	
E29	E33	E35	E37	E47	E51	C-1	C <b>-</b> 3	C-5	C-7	0	100	

●72 Color Set(B)

BV13	BV17	BV23	BV29	BV31	V000	V06	V15	V91	V95	RV000	RV06
RV13	RV34	RV95	R00	R05	R11	R17	R22	R35	R37	R46	R85
YR16	YR23	YR31	YR61	YR68	Y11	Y15	Y21	Y28	Y38	YG00	YG23
YG63	YG91	YG95	G000	G07	G14	G28	G85	G94	BG05	BG34	BG49
BG96	B02	B12	B45	B60	B63	B93	B95	B97	E11	E31	E43
E49	E50	E53	E57	E71	E77	E93	E95	W-1	W-3	W-5	W-7

### COPIC (214 Colors)

214 colors are available in total.

Nib itself gives smooth drawing feeling and is durable polyester chip.





Good Design Long Life Design Award

- Single 214 Color
- Original (Empty Marker)
- Basic 12 Color Set
- Cool Gray 12 Color Set
- •Warm Gray 12 Color Set
- Wallin Gray 12 Color Sei
- Neutral Gray 12 Color Set
- ●Toner Gray 12 Color Set
- ●36 Color Set
- 72 Color Set(A)72 Color Set(C)
- ●144 Color Set



### [Spare Nib for COPIC]

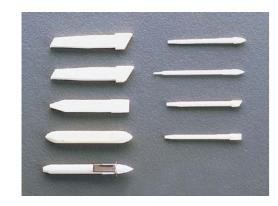
5 types for bold stroke and 4 types for detail stroke for COPIC.

For Bold Stroke

- Standard Broad(10ocs/set)
- Soft Broad (10pcs/set)
- Calligraphy 5mm(10pcs/set)
- Round(10pcs/set)
- Brush(3pcs/set)

For Detail Stroke

- Standard Fine(10pcs/set)
- Super Fine(10pcs/set)
- Semi Broad (10pcs/set)
- Calligraphy 3mm(10pcs/set)



### Basic 12 Color Set

V09	RV11	R08	YR04	Y13	YG03	G17	B14	B29	B39	E09	100
● Coc	ol Gray	12 C	olor Se	et							
C-0	C-1	C <b>-</b> 2	C-3	C-4	C <b>-</b> 5	C-6	C-7	C-8	C-9	C-10	100

Neutral Gray 12 Color Set

N-0 N-1 N-2 N-3 N-4 N-5 N-6 N-7 N-8 N-9 N-10 110

●Ton	er Gra	ıy 12 (	Color S	Set							
T-0	T-1	T-2	T-3	T-4	T-5	T-6	T-7	T-8	T <b>-</b> 9	T-10	0

Warm Gray 12 Color Set

		ay 12 (									
W-0	W-1	W <b>-</b> 2	W-3	W-4	W <b>-</b> 5	W-6	W-7	W-8	W-9	W-10	0

●36 Color Set

V09	RV11	RV29	R02	R08	YR04	YR24	Y11	Y13	Y15	YG03	G07
										E29	
C-1	C-3	C-5	C-7	C-9	W-1	W <b>-</b> 3	W <b>-</b> 5	W-7	W-9	100	110

●72 Color Set(A)

BA08	V06	V09	HV04	HV09	HV11	HV1/	HV19	HV29	R02	H08	H27
R32	R37	YR00	YR04	YR07	YR09	YR14	YR18	YR23	YR24	Y06	Y11
Y13	Y15	Y21	Y26	YG03	YG13	YG23	YG91	YG95	YG97	YG99	G07
G17	G21	G28	G99	BG09	BG10	BG15	BG18	B05	B06	B14	B23
B26	B29	B32	B34	B37	B39	E09	E29	E33	E37	E44	C-1
C-3	C-5	C-7	C-9	W-1	W-3	W-5	W-7	W-9	0	100	110

●72 Color Set(C)

BV04	BV23	BV31	V12	V15	V17	RV02	RV10	RV13	RV21	RV25	RV32
RV34	R00	R05	R11	R24	R39	R59	YR02	YR16	YR21	Y08	Y19
Y23	Y38	YG05	YG07	YG09	YG11	YG21	YG25	YG41	YG45	YG63	YG67
G00	G05	G09	G12	G14	G19	G20	G24	G40	G82	G85	BG11
BG32	BG34	BG45	BG49	B12	B16	B18	B21	B24	B41	B45	E00
F02	F21	F35	F39	F41	F43	F51	F53	F55	F57	F59	F77

●144 Color Set

BV00	BV08	V04	V06	V09	RV04	RV06	RV09	RV11	RV14	RV17	RV19
RV29	R02	R08	R17	R20	R27	R29	R32	R35	R37	YR00	YR04
YR07	YR09	YR14	YR18	YR23	YR24	Y00	Y02	Y06	Y11	Y13	Y15
Y17	Y21	Y26	YG01	YG03	YG13	YG17	YG23	YG91	YG95	YG97	YG99
G02	G07	G16	G17	G21	G28	G29	G99	BG02	BG05	BG09	BG10
BG13	BG15	BG18	BG99	B00	B01	B02	B04	B05	B06	B14	B23
B26	B29	B32	B34	B37	B39	E04	E07	E09	E11	E13	E15
E19	E25	E27	E29	E31	E33	E34	E37	E40	E44	E49	C-0
C-1	C-2	C <b>-</b> 3	C-4	C-5	C-6	C-7	C-8	C <b>-</b> 9	C10	N <b>-</b> 0	N-1
N-2	N-3	N-4	N <b>-</b> 5	N-6	N-7	N <b>-</b> 8	N <b>-</b> 9	N-10	T-0	T-1	T-2
T <b>-</b> 3	T-4	T-5	T-6	T-7	T-8	T-9	T-10	W-0	W-1	W-2	W <b>-</b> 3
W-4	W-5	W-6	W-7	W-8	W-9	W-10	0	0	100	100	110

### **COPIC OPAQUE WHITE**

White for highlighting.

●30ml







### **COPIC Wide (36 Colors)**

The width of Nib is 21mm. Wide type COPIC. Its use is mainly for rendering.

Quick drawing for wide space at once.

Single 36 Color

- $\bullet {\it Original}({\it Empty Marker})$
- ●12 Color Set A(Basic)
- ●12 Color Set B(Pastel)
- ●12 Color Set C(Gray)



# © 12 Color Set A(Basic) V17 R02 R29 YR04 Y08 YG03 G07 B24 B29 B39 E29 100 © 12 Color Set B(Pastel) R27 Y15 Y17 Y26 G21 BG10 B32 B34 E04 E31 E33 E49

C1 C3 C5 C7 C9 W1 W3 W5 W7 W9 100 110

COPIC WIDE

R27

### COPIC Multi Liner

This pen does not bleed with COPIC. Super thin drawing pen.

7 types for line width and 7 colors available.

%12pcs/set

Line width (mm)	0.03	0.05	0.1	0.3	0.5	8.0	1.0
●Black	0	0	0	0	0	0	0
■ Cool Gray	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	_	_
■Warm Gray	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	_	_
<ul><li>Sepia</li></ul>	$\circ$	$\circ$	$\circ$	$\circ$	$\circ$	_	_
●Wine	_	$\circ$	$\circ$	$\circ$	$\circ$	_	_
■ Cobalt	_	$\circ$	$\circ$	$\circ$	$\circ$	_	_
Olive	_	0	$\circ$	0	$\circ$	_	_



### [Brush]

Multi Linea with Brush Type Nib

- ●Black Brush Detail Stroke(BS) Bold Stroke(BM)
- Sepia Brush Detail Stroke(BS) Bold Stroke(BM)



%12pcs/set

# COPIC VARIOUS INK

Replenishment for ink. Original color can be made with the mixture of colors.

The injection with booster can be convenient and easy to do so.

- Single 358 Color \*Including Colorless Blender
- Empty Bottle

●12 Color Set C(Gray)

- Colorless Blender 200cc
- COPIC Original
- COPIC Sketch Original
- COPIC Wide Original
- Booster (3pcs/set)

### How to refill Various Ink

Attach Booster onto the COPIC Various Ink.

○ For COPIC Sketch & COPIC CIAO.
(Filling quantity: 3cc for Sketch, 2.5cc for CIAO)

Take out Medium Broad first. Insert Booster deeply and then push the bottle of Various Ink hard for refill.

○ For COPIC.

(Filling quantity : 4cc)

Without taking out Broad nib, insert Booster deeply on the side of the Broad nib. Then, push the bottle of Various Ink hard for refill.



### [Set]

• A-2 Set All 7 Black

●B-2 Set All 7 Black+All 2 Brush

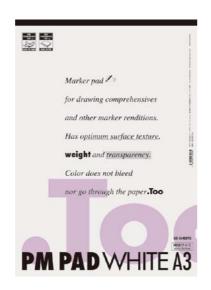




### PM Pad White A3 Standard

The pad that binds the paper developed for the pastel and the marker. This paper has optimum roughness, hardness, and thickness which also bring this pad to be used as underlay and overlay. The pad can be used as the rough-sketch, comprehension, presentation, and illustration paper. As to fulfill customers' needs, we have released "A3 Size Standard".

●A3 Standard 420×297mm 50sheets/book

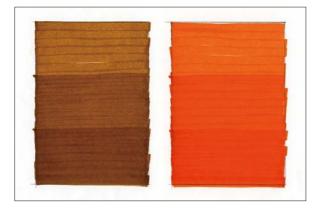




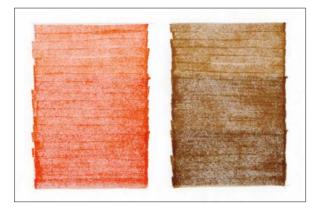
Size of PM Pad A3 (Green Logo) is 309mm×446mm. This is not A3 Standard Size.



The size of this is A3 standard, so it can put into regular file.



Example of color of COPIC on PM Pad. From the top, first coat, second coat, and third coat.



Example of bleeding on the back. PM Pad does not bleed on the paper underneath.

### **PM Pad White**

The pad that binds the paper developed for the marker. It has optimum transparency. This pad can be also used for rough-sketch.

- B2 50sheets/book
- ●B3 50sheets/book
- ●B4 50sheets/book
- ●B5 50sheets/book
- A2 50sheets/book
- ●A3 50sheets/book
- •A4 50sheets/book



### **Trepe Pad**

1 book contains 50sheets which are made from transparent matt tracing paper. It has high transparency and there will be no under reflections drawing with oil based marker.

### [Thick]

- A2 50sheets/book
- ●A3 50sheets/book
- A4 50sheets/book

### [Thin]

- ●A2 50sheets/book
- ●A3 50sheets/book ●A4 50sheets/book
- Cabinet 135×178mm 50sheets/book



### **KARISMA Color (72 Colors)**

Because this soft and thick lead has less oil, the mixture and over layer with different colors can be possible. This colored pencil is suitable using with the pastel together in rendering.

- Single dozen(12pcs/set) 48 Color Set
- ●24 Color Set
- ●72 Color Set





### [KARISMA Color Color Chart]

PC-901	PC-910	PC-916	PC-924	PC-930	PC-939	PC-947	PC-989	PC-1003	PC-1012	PC-1031	PC-1060
Indigo Blue	True Green	Canary Yellow	Crimson Red	Magenta	Peach	Dark Umber	Chartreuse	Spanish Orange	Jasmine	Henna	Cool Gray 20%
PC-902	PC-911	PC-917	PC-925	PC-931	PC-940	PC-948	PC-992	PC-1004	PC-1014	PC-1032	PC-1063
Ultramarine	Olive Green	Sunburst Yellow	Crimson Lake	Dark Purple	Sand	Sepia	Light Aqua	Yellow Chartreuse	Deco Pink	Pumpkin Orange	Cool Gray 50%
PC-903	PC-912	PC-918	PC-926	PC-932	PC-941	PC-949	PC-994	PC-1005	PC-1021	PC-1033	PC-1065
True Blue	Apple Green	Orange	Carmine Red	Violet	Light Umber	Metallic Silver	Process Red	Limepeel	Jade Green	Mineral Orange	Cool Gray 70%
PC-905	PC-913	PC-919	PC-927	PC-933	PC-942	PC-950	PC-995	PC-1006	PC-1023	PC-1051	PC-1069
Aquamarine	Spring Green	Non-Photo Blue	Light Peach	Violet Blue	Yellow Ochre	Metallic Gold	Mulberry	Parrot Green	Cloud Blue	Warm Gray 20%	French Gray 20%
PC-907	PC-914	PC-921	PC-928	PC-935	PC-944	PC-956	PC-997	PC-1007	PC-1027	PC-1054	PC-1072
Peacock Green	Cream	Pale Vermilion	Blush Pink	Black	Terra Cotta	Lilac	Beige	Imperial Violet	Peacock Blue	Warm Gray 50%	French Gray 50%
PC-908	PC-915	PC-922	PC-929	PC-938	PC-946	PC-988	PC-1002	PC-1008	PC-1030	PC-1056	PC-1074
Dark Green	Lemon Yellow	Poppy Red	Pink	White	Dark Brown	Marine Green	Yellowed Orange	Parma Violet	Raspberry	Warm Gray 70%	French Gray 70%

### **NT Cutter**

Various versions of NT Cutter are available.

World bestseller standard cutter knife. Excellent quality for cutting paper, film, wallpaper and leather.

● A-300 A Type Blade (Thickness 0.38mm) with BA Spare Blade 58° 3pcs included



Longtime seller cutter excellent for cutting thick materials such as card board, carpet, floor sheet, and plywood board. Useful for cutting an armature of the clay.

● L-500 L Type Blade (Thickness 0.45mm) with BL Spare Blade 58° 3pcs included



Standard model as a design knife. Loosen the tip of the knife, insert the blade and fix the blade for use. Excellent cutting feeling for fine work such as art work and paper cutting work.

● D-400 D Type Blade (Thickness 0.38mm) with BDA45° · BDC30° Spare Blade 5pcs included



Aluminum made blade disposer that can be

attached onto a belt. A blade of cutter can

**Blade Disposer** 

be disposed while working.

●BD-2P

Professional model for fineness work with stainless body. It has self-locking function.

● A-1P A Type Blade (Thickness 0.38mm) with BA Spare Blade 58° 3pcs included



● AD-2P AD Type Blade (Thickness 0.38mm) with BAD Spare Blade 30° 1pcs included



### NT Cutter Spare Blades

● BA-160 A Type Blade 58° 10pcs/set



●BAD-21P AD Type Blade 30° 10pcs/set



● BL-300P L Type Blade 58° 6pcs/set



● BDA-200P DA Type Blade 45° 40pcs/set



● BDC-200P DA Type Blade 30° 40pcs/set



### NT Circle Cutter CL-100 Olfa Compass Cutter

It can cut precisely for the thickness of plywood from a diameter 100mm to 1000mm.



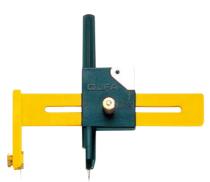
[Spare Blade for CL-100]

●BC-501P 2pcs/set



Cutting size from 10mm to 150mm $\phi$ 

Includes Spare Blade for
 Olfa Compass Cutter 5pcs



# NT Circle Cutter C-1500P

Cutting size from 18mm to 170mm $\phi$ . With attaching beam slide, maximum cutting size would be 400mm.

● C-1500P with Spare Blade 5pcs included



[Beam Slide] for C-1500P

Special extend slide for NT Circle Cutter C-1500P.

● CE-700P



[Spare Blade BDA-200P] for C-1500P

●BDA-200P 45° 40pcs/set



# NT Circle Cutter C-2500P

Cutting size from 30mm to  $160 \text{mm} \phi$ . Good for cutting thick and hard materials.

● C-2500P with Spare Blade 2pcs included



[Spare Blade BC-400P] for C-2500P

●BC-400P 10pcs/set



[Spare Blade BC-501P] for C-2500P

●BC-501P 2pcs/set



### **New Tweezer**

Stainless made light tweezer. Good for using it for a long time.

New Tweezer Length 160mm



New Tweezer Special Version Length 160mm

Developed for medical use. Sharper tip



# Safety Base

Surface has 50mm section. Color: green. There are two types. Soft type: it can be stretched back after rolled up.

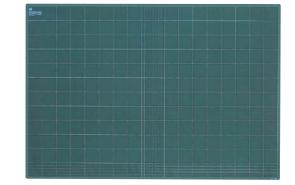
Hard Type: It has strong body with fine finish.

### [Soft type]

● SM2000 300×450×3mm ● MM3900 450×620×3mm ● LM7000 620×900×3mm

### [Hard Type]

\$\$1000H\$\$300 \times 300 \times 300 \times 30mm



### **Graphic Base**

Semi transparent graphic base that has 1mm section on the surface. Color: white.

A4 Plus 318×217×1.6mm
 S 300×450×3mm
 M 450×600×3mm
 L 600×900×3mm



### **TOOLS INT'L Ellipse Curves** 10pcs/set

The must-have item for designers and design related people. This curve set is arranged with the frequent used oval angles 15° 25° 35° 45° 55° between the pitch 2mm to 4mm.

### ●Ellipse Curves 10pcs/set

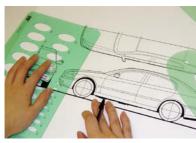
- 15° 10mm 52mm
- 15° 56mm 100mm
- 25° 6mm - 52mm
- 25° 56mm - 100mm
- 35° 4mm - 52mm
- 35° 56mm — 100mm
- 45° 3mm — 52mm 56mm — 100mm
- 3mm 52mm

111111111

55° 56mm - 100mm









### **IZUMIYAN Professional Curves** 10pcs/set

**TOOLS INT'L Curves 3pcs/set** 

These 3 curves are the most useful curve lines for marker

especially among students and intermediate level designers.

カーブ定規3枚組

sketch and design rendering. This curve set is useful

●TOOLS INT'L Curves 3pcs/set

Transparent orange color acrylic made

Set C 10pcs/set Maximum Length: 520mm, Thickness 2mm

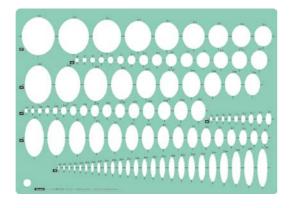


### **TOOLS INT'L Ellipse Curves Standard**

This curve is recommended especially for the first time user. In the template with the size A3, the oval angles: 15° 30° 45° 60° are composed. Diameter size of oval from 6mm-60mm with in the pitch 2mm-4mm.

- •Ellipse Curves Standard A3 420×297mm
- 15° 6mm 60mm
- 30° 6mm 60mm
- 45° 6mm 60mm
- 60° 6mm 60mm





### **Railway Curves**

This curve is made from clear acrylic with 2 parallel R curves from 30mm to 5000mm. Comes with a wooden case.

- ●30pcs/set 100~1000mmR
- ●50pcs/set 30~2900mmR
- ●100pcs/set 30~5000mmR

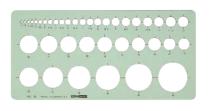
Thickness 2mm Transparent acrylic made





### **Circle Ruler**

No.101 Color: Green 110×230×0.8mm(1~36mm with 39 circles)



### **Triangle Ruler**

### [With Edge]

●30cm Without Grid Thickness 3mm Transparent acrylic made

### [Without Edge]

●30cm Without Grid

Thickness 3mm Transparent acrylic made

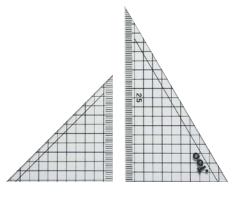


### **Section Triangle Ruler**

Triangle ruler with 5mm grid section.

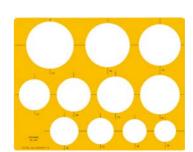
●30cm 5mm grid

Thickness 2mm Transparent acrylic made



### **Circle Ruler Large** No.106

●No.106 330×260×0.8mm (40~90mm with 11 circles)



### **Rib Ruler**

●Color: Green 172×173×0.8mm(1~1000mmR)



### **Acrylic made Straight Ruler**

●30cm 300×Width 30mm Thickness 3mm

● 45cm 450×Width 43mm Thickness 3mm

●50cm 500×Width 47mm Thickness 3mm

●60cm 600×Width 56mm Thickness 3mm



### **Stainless Straight Ruler**

Stainless ruler. On the back of the ruler, the size lists of A, B line, paper, frame, and campus are die stamped.

- ●15cm
- ●30cm ●60cm







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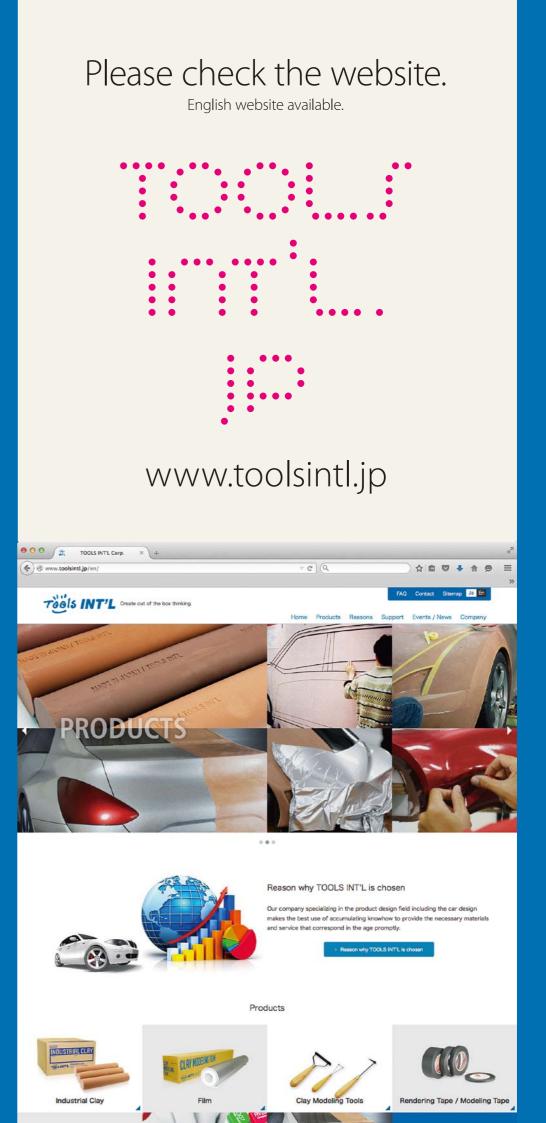
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Tel: 1-732-751-0003 Fax: 1-732-751-1982 http://www.chavant.con

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