System requirements for SheetWorks

Recommended OS

Microsoft Windows 2000 Professional
(Service Pack 2 or later versions)
(In networking with PCL, AP100)

Microsoft Windows XP Professional
(Service Pack 0 or 1)

Recommended RAM

256MB or larger: 1,000 or fewer components and 300 or fewer features
512MB or larger: 1,000 or more components and 300 or more features
1GB or larger: 2,500 or more components and 1,000 or more features

Graphic card

As for the combination of verified graphic adaptors and drivers, please refer to the following web site:
http://www.solidworks.com/swdocs/support/html/videoissues/videotest.cfm
* The details of system requirements are the same as that for SolidWorks.

※For more information about the system requirements, please contact our sales personnel.

3D Solid Sheet Metal CAD System

SheetWorks for Unfold

http://www:sheetworks.amada.co.jp

AMADA COMPANY, LTD.
200, Ishida, Isehara-shi, Kanagawa 259-1196 JAPAN
Phone:81-463-96-3411 Fax:81-463-96-3281
http://www.amada.co.jp

AMADA AMERICA INC.
7025 Firestone Boulevard,Buena park CA 90621, U.S.A.
Phone:1-714-739-2111 Fax:1-714-739-4099

AMADA CANADA LTD.
885, Avenue Georges Cros Granby Quebec J2J1E8, Canada
Phone:1-450-378-0111 Fax:1-450-777-3736

AMADA U.K. LTD.
Spennells Valley Road, Kidderminster,
Worcestershire DY10 1XS, England
Phone:44-1562-749-500 Fax:44-1562-749-510

AMADA GmbH
Westfalenstr 6 D-42781 Haan Germany
Phone:49-2129-57901 Fax:49-2129-59183

AMADA S.A./AMADA EUROPE S.A.
Avenue de la pyramide, 93290
Tremblay-en-France, France
Phone:33-1-4990-3000 Fax:33-1-4990-3199

AMADA AUSTRIA GmbH
Wassergasse 1, A-2630 Ternitz, Austria
Phone:43-2630-35170 Fax:43-2630-35165

AMADA SCHIAVI S.R.L.
Via Copernico 2/4, Casoni di Gariga, 29027
PODENZANO (Piacenza), Italy
Phone:39-0523-550711 Fax:39-0523-550724

AMADA SINGAPORE (1989) PTE LTD.
12, Tannery Road, #05-01/02 HB Centre,
Singapore 347722
Phone:65-6743-6334 Fax:65-6743-3134

AMADA (MALAYSIA) SDN, BHD.
No.38, Jalan Kartunis, U1/47,
Temasya Industrial Park Section U1,
Glenmarie, 40150 Shah Alam,
Selangor Darul Ehsan Malaysia.
Phone:60-3-5569-1035 Fax:60-3-5569-1042

AMADA (THAILAND) CO., LTD.
Thosapol Land 3 BLDG., 6th Floor 947 MOO 12
Bangna-Trad Road, K.M. 3, Kwang Bangna,
Khet Bangna, Bangkok 10260 Thailand
Phone:66-2-361-9152-60 Fax:66-2-361-9165-66

AMADA TAIWAN INC.
21, Wenming St., Linkou 3 Ind. Park. Kweishan,
Taoyuan Hsien, Taiwan
Phone:886-3-328-3511 Fax:886-3-328-4200

BEIJING AMADA MACHINE & TOOLING CO., LTD.
Rm. 901 Dakang Building,No.44, Chongwenmenwai Street,
Beijing 100062, People's Republic of China
Phone:86-10-6711-8414 Fax:86-10-6711-8348

AMADA INTERNATIONAL INDUSTRY AND TRADING (SHANGHAI) CO., LTD.
No.125 Lao Hu Min Rd, Shanghai 200233,
People's Republic of China
Phone:86-21-6212-1111 Fax:86-21-6240-4104

AMADA INTERNATIONAL TRADING (SHENZHEN) CO., LTD.
Rm 801,8/F., Talfook Chong No.9, Shihua Road,
Futian Free Trade Zone, Shenzhen,People's
Republic of China
Phone:86-755-8358-0011 Fax:86-755-8359-7489

AMADA HONG KONG CO., LTD.
Unit 1808, 18/F., Miramar Tower, 1
Kimberley Road, Tsimshatsui, Kowloon, Hong Kong,
S.A.R., People's Republic of China
Phone:852-2868-9186 Fax:852-2521-1363

AMADA (INDIA) PRIVATE LTD.
412-C, Floral Deck Plaza, MIDC, Opp. Seepz, Andheri
(East), Mumbai-400093 India
Phone:91-22-2823-5406 Fax:91-22-2823-5405

AMADA KOREA CO., LTD.
635-1, Kojan-dong, Namdong-ku, Inchon,
Republic of Korea
Phone:82-32-821-6010 Fax:82-32-821-6015

AMADA OCEANIA PTY LTD.
24/5 Salisbury Rd., Castle Hill N.S.W.2154, Australia
Phone:61-2-9680-8900 Fax:61-2-9680-9855

AMADA DO BRASIL LTDA.
Rua Dr. Moises Kahan, 55/73, Barra Funda,
CEP:01139-040, Sao Paulo, SP, Brazil
Phone:55-11-3611-6278 Fax:55-11-3611-8432

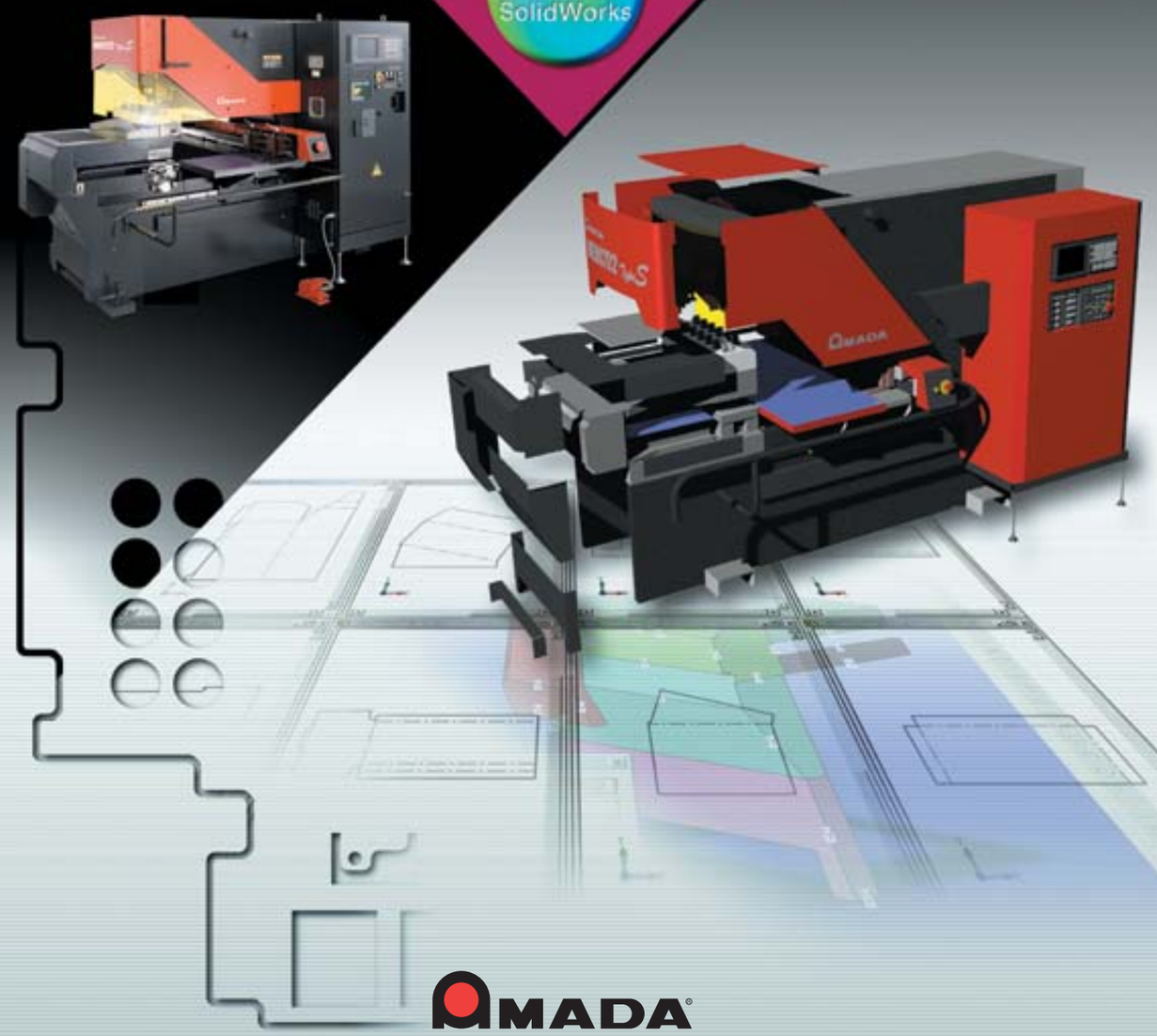
OOS-0502-0432

for Unfold

3D Solid Sheet Metal CAD System

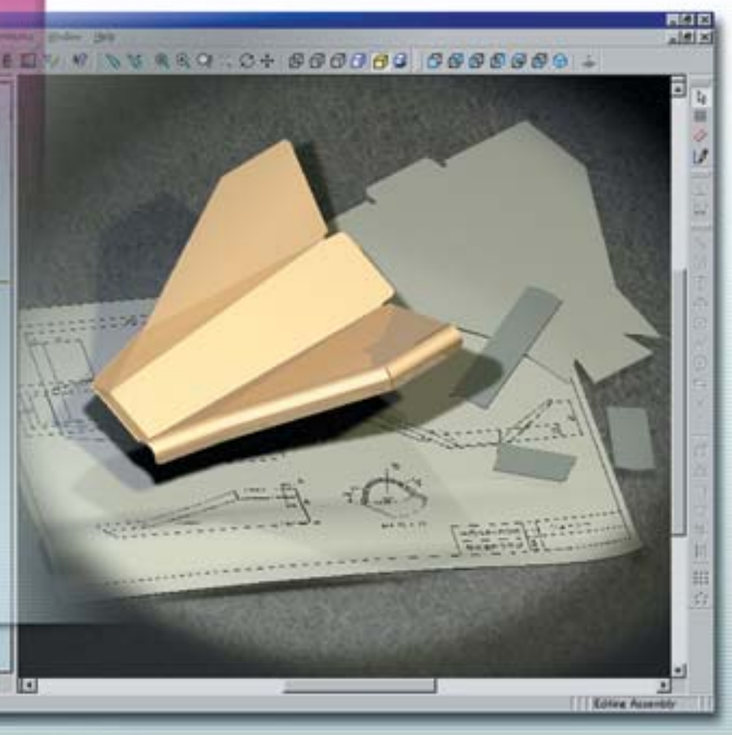
SheetWorks for Unfold

AMADA with SolidWorks



3D Solid Sheet Metal CAD System

SheetWorks for Unfold

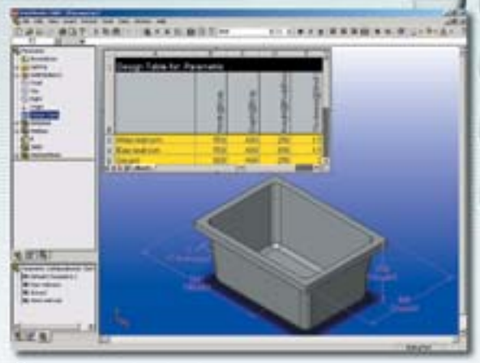


AMADA's sophisticated 3D CAD/CAM know-how has reached its zenith! Its functions leading to the strongest realm.

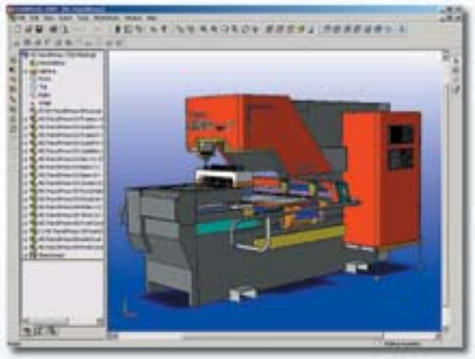
It is already ten years or so since
AMADA started its 3D CAD/CAM business in 1992.
Our know-how accumulated during this period has reached
the strongest realm by embracing the SolidWorks 3D solid modeler.
In addition to its excellent and unrivaled functions,
the SheetWorks for Unfold can receive and handle
all types of CAD data.
As a result, it has become unnecessary to introduce the same types
of 3D/CAD as that of multiple customers,
making it possible to smoothly shift from 2D/CAD to 3D/CAD for
sheet metal processing.

Highlights of SolidWorks

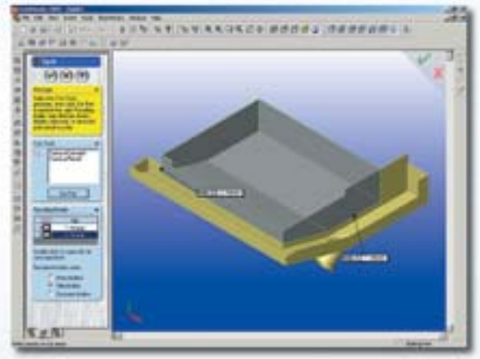
●Feature-based design
Each command is controlled on a feature basis. It is easy to modify and insert features at a later stage or change the sequence of features.



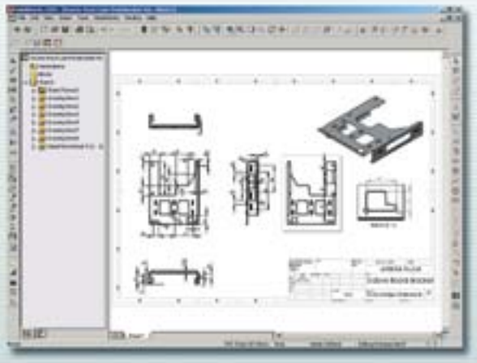
●Parametric design※
SolidWorks lets you deform any type of geometry by using dimensional values as parameters. Linking with those dimensional values of other parts facilitates the deformation of an assembly model.



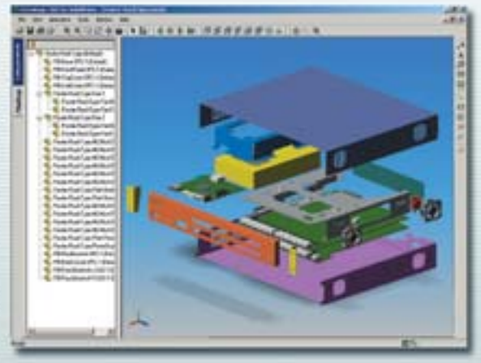
●Assembly modeling
"SheetWorks" supports both bottom-up and top-down assembly design techniques. Bottom up allows existing models of components to be built up into an assembly, while top down allows the designers to create an assembly by referring to other relevant parts.



●Component splitting
In the case where a component that should originally be expressed by multiple parts is modeled as a single component, the model can be easily disassembled by the component splitting function.



●Creating drawings
Drawings are automatically created from models you produced. Isometric drawings and part lists can also created. Changes to drawings and models are updated with mutual couplement and consistent compliance.



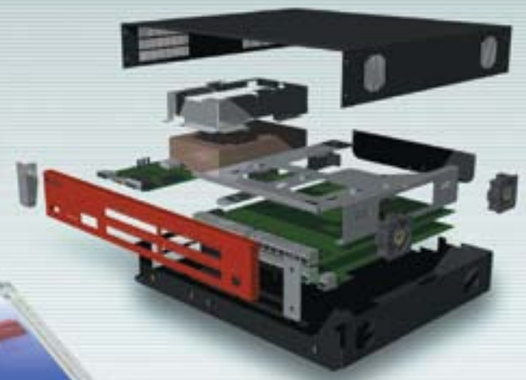
●eDrawing (Intelligent drawing communication tool)
Each command is controlled on a feature basis. It is easy to modify and insert features at a later stage or change the sequence of features.

※To perform parametric deformation using a design table, Microsoft Excel must be used.

3D Solid Sheet Metal CAD System

SheetWorks for Unfold

"SheetWorks for Unfold" provides all solu tions for different problems on both design engineers and production shops.



Design engineers consider total manufacturing processes through 3D CAD/CAM approach as follows:

●There is no point in working out a design in 3D if the shop floor demands 2D drawings.

●With conventional 2D drawings, even if a part shape or any other element was not fully represented on drawings, the shop floor would appreciate a designer's intention and machine it properly. However, with 3D designing, detailed modeling should put an enormous load on us.

●It takes too much time in combining components into an assembly as we describe every part feature (butt joints, overlapped corners, outer radii of bends, etc), taking interference into consideration.

●Once 3D modeling is complete, the floor shops should make full use of its data, otherwise its efforts will end up in waste.

●Although it is good thing to design sheet metal parts in 3D under the name of 3D CAD/CAM, it would be useless unless we provide consistency in data items up to those involved in the fabrication.

Production shops consider fully integrated manufacturing through 3D CAD/CAM approach as follows:

●Even if sheet metal parts are designed in 3D, we can achieve neither reduction in cost nor decreased production cycle unless we have a system that develops 3D CAD data instantly.

●We receive data created by different types of CAD tools used in customers or departments and, thus, it is not possible for us to have all CAD tools available and learn their operation.

●It might be possible for the designing department to produce a flat development, but unfolded lengths do not fit to the fabrication process. As a result, we will be forced to correct the development and there will be two different developments; one in the designing department and the other in the shop floor. This should account for defects.

●It should be even better for the shop floor to separate a model into parts for bending and provide feedback to the design engineer than having him (or her) produced the one that would not be suitable for the bending process. This is what the primary advantage of using 3D models is.

●To achieve a true fully integrated 3D CAD/CAM system for sheet metal, we must be able to increase efficiency of the subsequent processes, NCT, and bending process that follow the unfolding of 3D CAD shapes.

●If we are required to cut down the cost, we must have error-free, clean modeling data, not geometrically shelled data.

So. Amada offers a 3D solid sheet metal CAD system that provides the following capabilities.

●Receive 3D CAD data in any formats (e.g. Parasolid, STEP, ACIS, IGES, Pro/E, UG, etc).

●Produce unfolded views of any geometric shapes with simple operation. The time required for producing unfoldings will be reduced by 90% compared to what is used to be with 2D.

●Even shelled data can be easily modified on a solid sheet metal model that represents butt joints, bends and so on.

●The 3D design CAD tool (SolidWorks) is provided to allow the shop floor to reflect its know-how upon 3D models it receives.

●Powerful drafting capabilities allow the shop floor to produce minimal drawings if design engineers would not create drawings.

●"SheetWorks for Unfold" is provided to the design engineers to significantly improve the efficiency of solid modeling of sheet metal. (This is applicable only when they use SolidWorks.)

●Automatically capture the data required for CAM from a 3D model when unfolding it and write into the unfolded view as electronic data.
These data items demonstrate improved efficiency in a variety of CAM software downstream.

3D Solid Sheet Metal CAD System
SheetWorks for Unfold

Receiving all types of 3D CAD data and unfold them at a stroke (versatile CAD)
From batch unfolding and batch CAM, and data unfolding to estimation.

3D CAD → 3D/CAD in → SheetWorks for Unfold

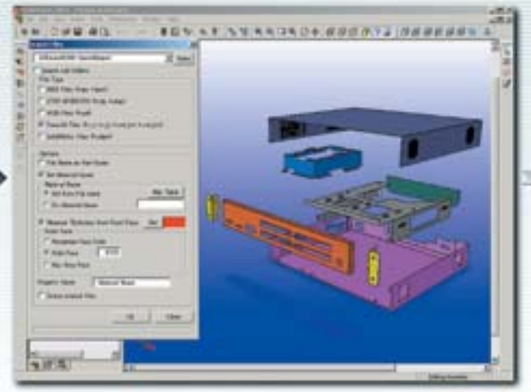
3D CAD data

Formats supported:
- IGES
- STEP
- Parasolid
- ACIS
- UGII
- SolidEdge
- Inventor

etc

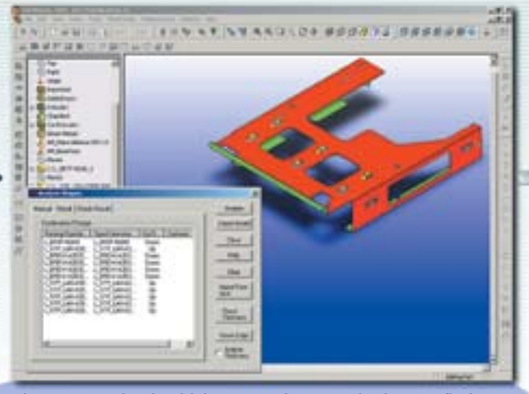
SolidWorks-compliant I/O formats

●Automatic reading



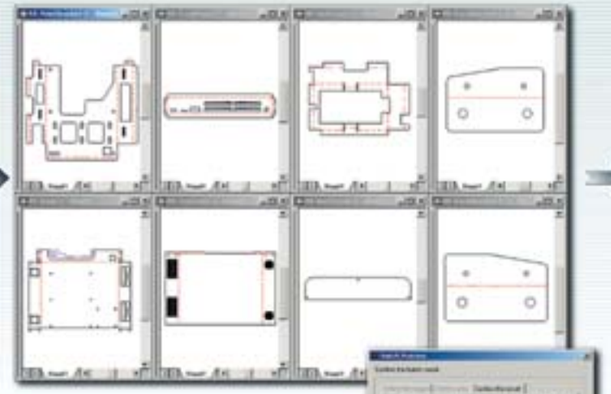
The system automatically sets the required conditions in unfolding 3D design models.

●Recognizing sheet metal shape



The system checks thickness surfaces and edges to find if the created models have suitable shapes as sheet metals.

●Batch unfolding

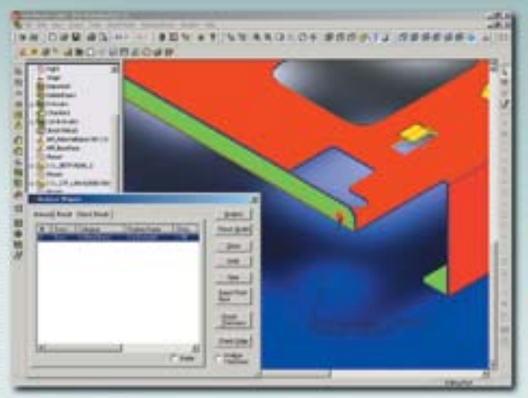


Batch unfolding results display ▶

The imported 3D data is automatically unfolded, and the data is unfolded, processed and automatically added with sheet metal processing attributes after the processes of model analysis, judgment on whether processing is possible or not, etc., rather than merely being unfolded. As a matter of course, the results are fast and precise.

●Model check function

This function checks holes very near to bends, flanges, and others to decide whether sheet metal processing is possible or not.



●Recognition of formed shapes and special mold shapes

"SheetWorks for Unfold" automatically separates and recognizes the formed shapes such as those to be burred, half sheared, embossed, louver cut, cut in a guide rail form, or bridged, and the special molds and the deformed holes.

●Formed shape (burring) ●Formed shape (bridge) ●Formed shape (embossed)

●Special mold ●Deformed hole

●Filling the punched sections of deformed holes

For deformed holes that require filling of the punched section by multiple metal molds, the metal molds can be automatically allocated through CAM if the punched section filling patterns have been registered beforehand.

●Formed shape and special mold learning capabilities

"SheetWorks for Unfold" learns formed shapes and special mold once used and adds appropriate processing information thereafter.

●SolidWorks standard feature recognition

If models are designed by SolidWorks, formed shapes and special molds are recognized in feature units and the corresponding processing information is automatically added.

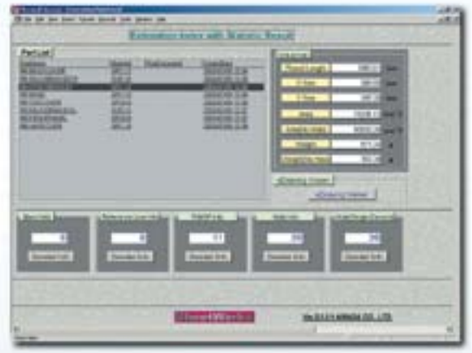
【Output formats】

- AP40・AP60・AP100 (IGA・BMF)
- DXF・DWG※1

※1 Information on sheet metal processing attributes is not output for DXF and DWG.

【Output of indices for estimation】

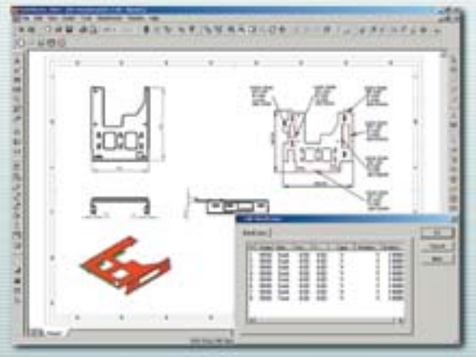
The sheet metal processing attribute information contained in unfolded views (bends, formed shapes and special molds) can be output to MDB files※2 as the indices for estimation, and the cost management of models is also possible.



※2 MDB file is the data form for Microsoft Access. Microsoft Access is separately required in order to refer to and make up the estimation index that is output.

【Creation of forms】

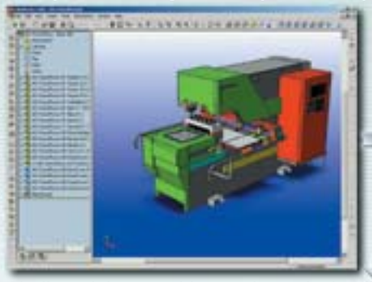
Work instruction forms such as bending, assembly, welding, and others can be created from 3D models.



3D Solid Sheet Metal CAD System
SheetWorks for Unfold

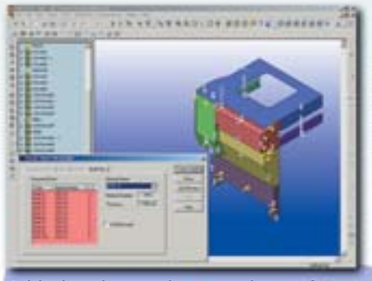
Creates precise sheet metal solid models from shell models.

●Top-down design model (shell model)



Shell model created in top-down design approach is disassembled to a precise solid model of a sheet metal part.

●Defining a solid model of sheet metal※



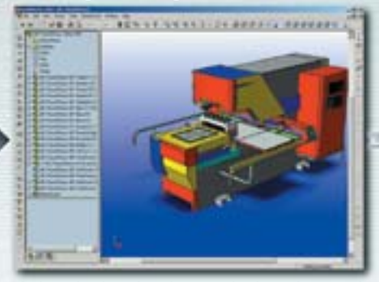
Adds bends to edges on the surfaces and defines the butt joints.

●Creating sheet metal solid model※

A solid assembly model that comprises multiple parts is created from shell models.

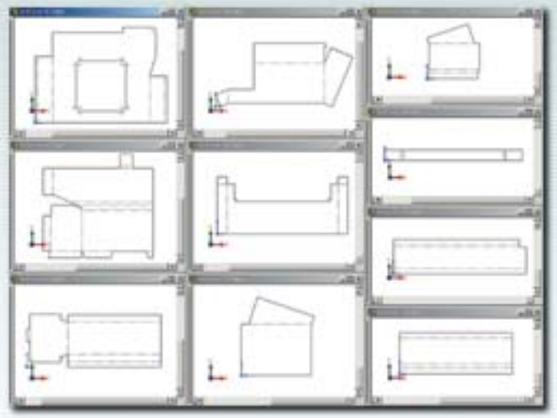
●Disassembling view

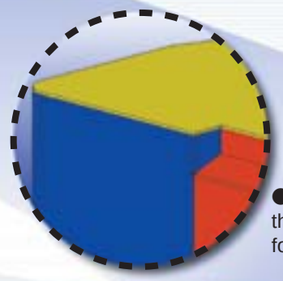
●Design change



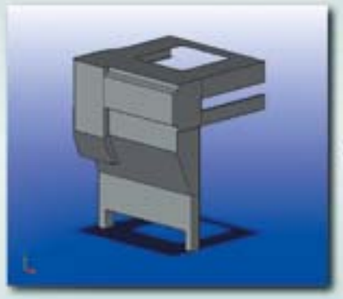
If the design is changed, the changed sheet metal model can be instantly created by simply recreating the sheet metal solid model from the shell model.

●Creating unfolded views



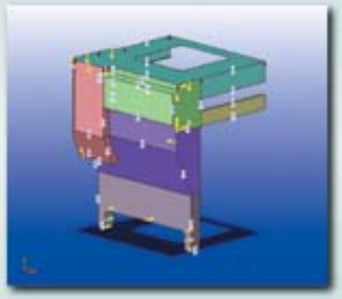


●Corner sections in considerations of the sheet thickness. These corner sections will be properly formed on the basis of the overlapping settings.

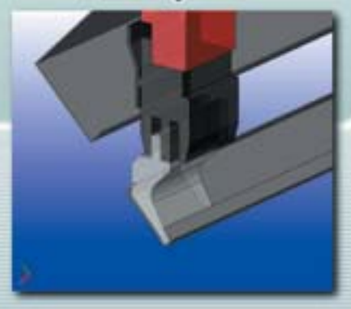


A thin-walled shell model composed of a single component.

Definition of bends and butt joints.



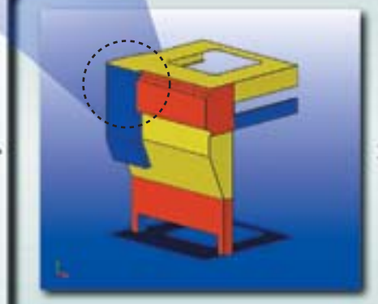
The preview function allows you to check how the parts compose the product.



TIPS for defining sheet metal solids※

●The system makes settings for the bends and butt joints for respective edges (corners).
●As for the bends, it is possible to designate different inner radiuses for respective edges.
●As for the contacts, it is possible to select different patterns such as the hard drawn butt joints, double drawn butt joints, fitting butt joints, etc.
●The split parts can be distinguished by color coding of the preview indications.

Return bend check function
In this function, you can insert AMADA's standard bend die in a model to judge on CAD whether bending is possible or not. It is also helpful in disassembling.



TIPS for defining sheet metal solids※

●Sheet thickness information will be automatically set. A sheet metal model indicating the sheet thicknesses will be called the "sheet metal solid model" On the basis of the [sheet metalizing definition] such as the overlapping between a sheet and a sheet, overlapping at corner sections, setting for the bends, accurate sheet metal solid model will be formed.
●Since the system makes the sheet metal solid automatically, compensating calculations in considerations of the sheet thickness will become totally unnecessary.

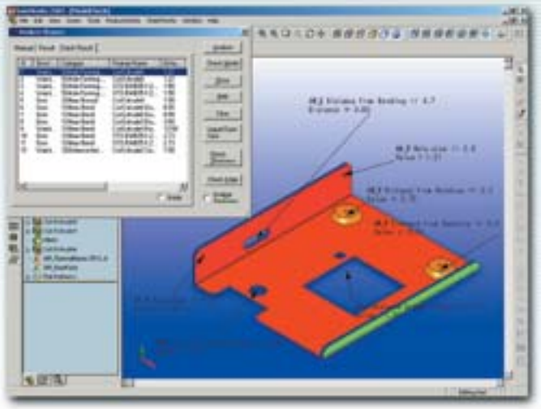
※ Pat. No. 3072278

The SheetWorks for Unfold is also applicable to the designing purposes.

Note: In sheet works course at Amada school, operation training is not carried out for design usage.

Sheet metal model check function

This function checks hole positions very near to bends, minimum flanges, pitches between holes, hole sizes of the models created, and prevents the unfolded views of impossible processing from being created.



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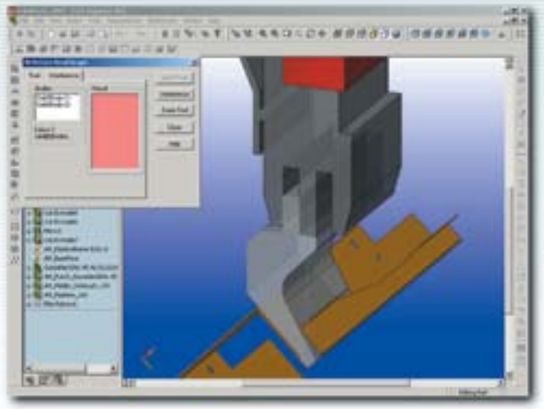

Sheet metal processing library

●The system is preparing many different forming shapes under the JIS Standard such as burrings, half-shears, embosses, louvers, guide rails, etc.

●The system is capable of making positionings of the drag and drop forming shapes including the NC turret punch press processing attributes (using tool names, multi-process data, etc.), thus making it possible to carry out the "automatic allocations for the forming dies" in the CAM processes.

●The system can indicate the tables concentrating to the material kinds and sheet thicknesses thus preventing occurrences of errors to include the shapes which cannot be processed (designing restrictions).

Registration of the library

Your using forming shapes can be registered by respective material kinds and sheet thicknesses.

Drag & Drop

From the CAD stage to the CAM stage --- A design model can be effectively made use of from cutting to bending!

3D Solid Sheet Metal CAD System

SheetWorks for Unfold

Function to three-dimensionalize AP data

The unfolded views with bend attributes created by the AP100 or others are loaded in and automatically converted into 3D data. With this, it is also possible to check the interference of assembly on the SheetWorks.

Network

●"SheetWorks for **Unfold**" will receive the model made out by three-dimensional CAD system to make immediate development.

●The development elevations thus made out will possess the sheet metal processing attributes such as of the forming die data and bending line data connecting seamlessly to the CAM system consisting of the turret punch press, laser cutting machine and bending machine.

●After "SheetWorks for **Unfold**" carries out the development work, the automatic bending pro "BEND/CAM, ASTRO/CAM" will start its operations.

AMADA's sheet metal processing system