BOXCAD
HANDBOOK

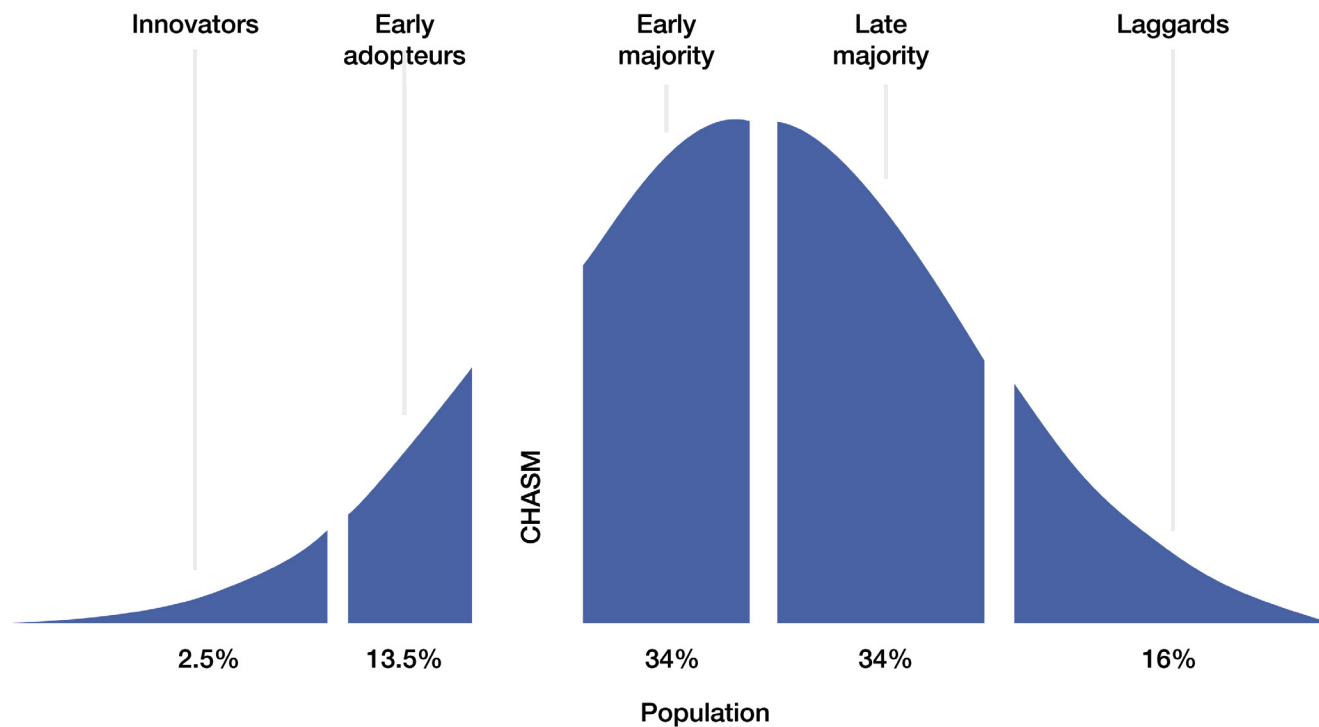You don't need CAD software knowledge
to customize your electrical enclosures.

BOXCAD

"INNOVATION DISTINGUISHES BETWEEN A LEADER AND A FOLLOWER".

– Steve Jobs

In the life cycle of a new technology,

approximately **15%** *of leading-edge users*

will adopt this innovation from its very beginning.

Do you want to be part of the **15%** *of innovators*

or wait and follow the laggards?

The use of BOXCAD requires Internet access.

The BOXCAD service can be used with a personal computer running on such operating systems: Mac, Windows or Linux

The BOXCAD service is also accessible using a tablet with a recognized Internet browser. Use an Internet browser such as: Explorer, Edge, Chrome, Firefox, Opera, Safari.

What is BOXCAD?

BOXCAD was developed and used internally by EXM before it was made available to the public in 2005. It is used to facilitate the design of custom electrical boxes.

Before the BOXCAD era, a box drawn by our customers would have to be drawn a second time according to our manufacturing standards. This process doubled the efforts required. Also, it greatly increases the risk of errors due to misinterpretations.

This is why EXM innovated by offering a **user-friendly platform that allows its users to directly configure a custom electrical enclosure, whether or not that person has knowledge of CAD software.**

Why use BOXCAD?

BOXCAD allows modifying electrical enclosures while respecting the rules required for approvals (UL and CSA).
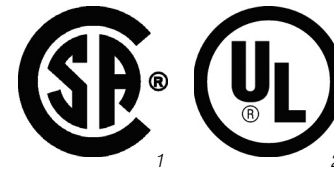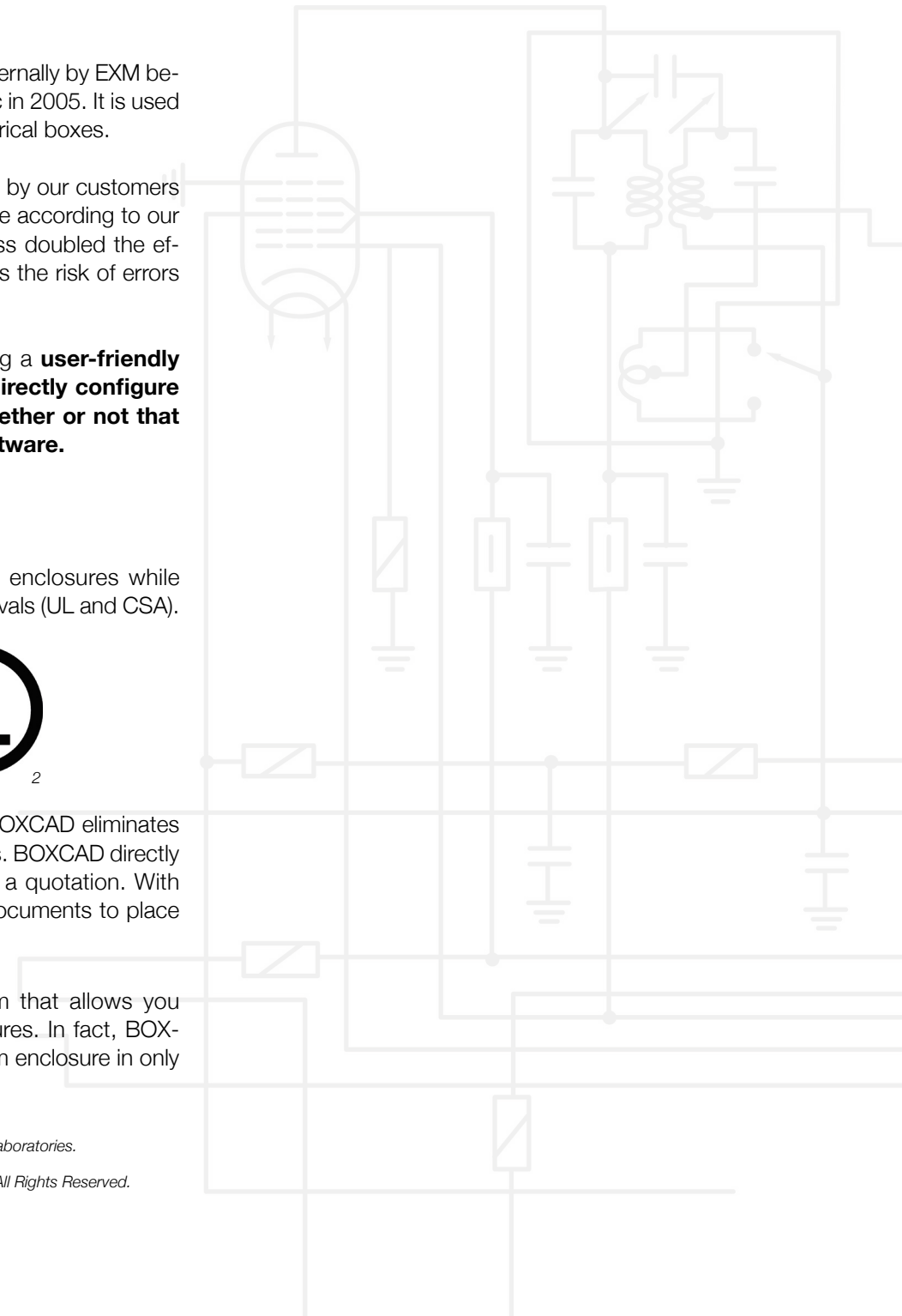
In addition to facilitating the design, BOXCAD eliminates an exhausting communication process. BOXCAD directly provides drawings of the design and a quotation. With BOXCAD, you'll receive all required documents to place an order in good and due form.

BOXCAD is an easy to use platform that allows you to quickly configure electrical enclosures. In fact, BOXCAD allows you to design your custom enclosure in only a few steps.

1 UL® is a registered trademark of the Underwriters Laboratories. All Rights Reserved.
2 CSA® is a registered trademark of the CSA Group. All Rights Reserved.

Innovators	Early adopteurs	Early majority	Late majority	Laggards
2.5%	13.5%	34%	34%	16%

CHASM

Population

Your dimensions :

With BOXCAD it is possible to define the dimensions required for your enclosure. Set the size of your box using a dimentional rule chart, which takes into account the production capacity of EXM while maintaining the required certifications.

Your cutouts :

Use the Drag & Drop interface of BOXCAD in order to position holes and knockouts essential to your configuration. All holes will be made before painting, which will prevent you from making time-consuming paint touch-ups.

Your colors :

Choose from a wide variety of paint colors and finishes. You immediately receive the price associated with this change, this option will avoid paint supply delays.

BOXCAD, it's like having your own manufacturing facility!

Furthermore, BOXCAD allows you to add several accessories ; threaded studs, different types of windows, temperature control solutions, DIN rails, etc.

YOUR BOXCAD IN 6 BUSINESS DAYS*

One of the most decisive advantages of BOXCAD is the production speed of your electrical box.

Whether for an order of 1 or more than 100 boxes, your order will be treated as a priority. In fact, when you configure your enclosure through BOXCAD, all files that are required for production are generated automatically. Your box is ready to be produced as soon as you are done configuring it.

This production time is unrivalled in the industry.

In addition to obtaining your enclosure in a short delay, you will receive it ready to be assembled with your components, thus facilitating your assembly and saving valuable time.
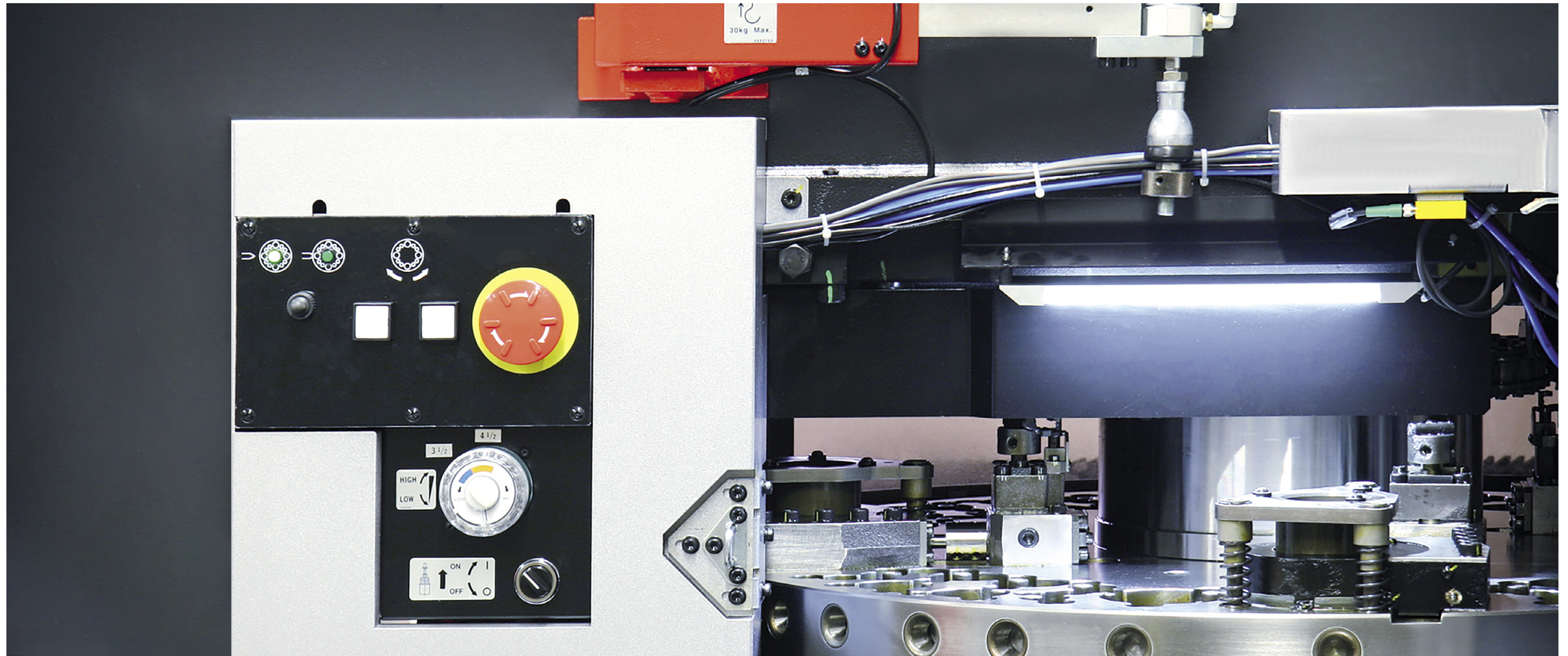
*Certain conditions apply.

BOXCAD®

BOXCAD ADVANTAGES

Discover the benefits of working with EXM's product configurator

YOU MIGHT THINK THAT THE PRODUCT CONFIGURATION PROCESS IS TOO COMPLEX AND EXPENSIVE.

THINK AGAIN, THE BOXCAD PRODUCT CONFIGURATOR BRINGS VALUE TO YOUR BUSINESS. DISCOVER HOW:

Custom manufacturing made easy

The industry demands products that are custom made and responding to specific needs. To meet this demand, EXM adapted its manufacturing model to offer a custom made product at the best price possible.

BOXCAD offers an easy to use interface that allows you to fully access the modification capacities offered by EXM.

Innovative product configurator

Over the last decade, EXM has constantly refined the BOXCAD configurator. The constant addition of new features ensures the development of this innovative tool allowing BOXCAD users to improve the design of their electrical enclosure.

Accessibility

The BOXCAD service is accessible at all times and from anywhere in the world. All you need is an access to a computer or a tablet connected to the Internet. BOXCAD requires no installation; simply use your Web browser.
(Refer to page 5)

Service graciously offered to EXM customers

No P.O is necessary to use the BOXCAD product configurator. The service is offered to EXM customers who request an access.

An interactive catalog

The EXM catalog provides a limited number of combination products and cannot satisfy all needs. The vast majority of EXM products are available on BOXCAD, where you have the option to customize them according to your needs.

Typical CAD aren't easy to use

The use of a catalogue to draw your electrical enclosure using CAD software is currently the standard in the industry. This process is based on human expertise that generates costs and complications.

BOXCAD provides a complement to CAD softwares and catalogue study. In fact, the BOXCAD service enhance the use of your CAD software by generating an electrical enclosure drawing that can later be uploaded to your CAD system. You will no longer have to manually draw your boxes; BOXCAD will do it for you.

STEP 1 :
Access BOXCAD

STEP 2 :
Design your enclosure

STEP 3 :
Receive it!

Quotation & orders

BOXCAD is a powerful quotation tool that offers accurate pricing through an automated process. **In fact, with BOXCAD you will automatically receive a quotation by email, you will no longer need to make requests for quotes or makestressful follow-ups.** Quotations are made using an algorithm that provides the right price and eliminates errors.

The BOXCAD product configurator reduces order-processing time by creating a part number specific to your configuration. Your order is ready to be entered into our ERP system as soon as you have designed your product.

Security & intellectual property

An authentication process is required when connecting to your BOXCAD profile. Your configurations are protected and only accessible to the user of the BOXCAD account. Configurations that are associated with your profile are not accessible to other BOXCAD users.

Certification

Your configuration will meet all requirements mandatory by CSA & UL according to the chosen enclosure model.

3

4
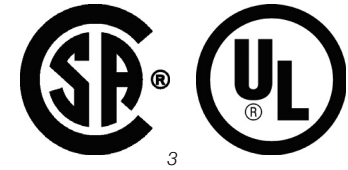
3 UL® is a registered trademark of the Underwriters Laboratories. All Rights Reserved.
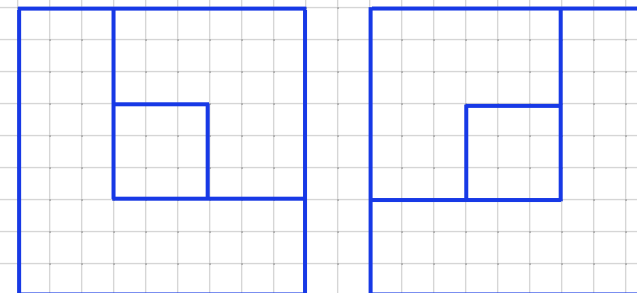
4 CSA® is a registered trademark of the CSA Group. All Rights Reserved.

TECHNICAL DRAWINGS

*BOXCAD allows users to easily obtain technical drawings without having to place an order.*

2D Drawings

Drawings in 2D .pdf and.dxf formats will facilitate the elaboration of your specifications and sketch, as you will get the full details of your EXM enclosure configuration.

3D Drawings

A drawing in .stp format will allow you to import your EXM enclosure to the vast majority of CAD systems. This represents a genuine advantage since it is no longer necessary to draw electrical boxes.
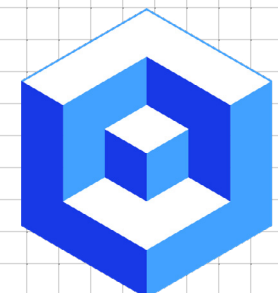
Quality service & support

The BOXCAD team is dedicated to offer the support you need to complete your custom enclosure projects. We encourage our customers to contact us directly in order to get help. Comments can also be sent to :
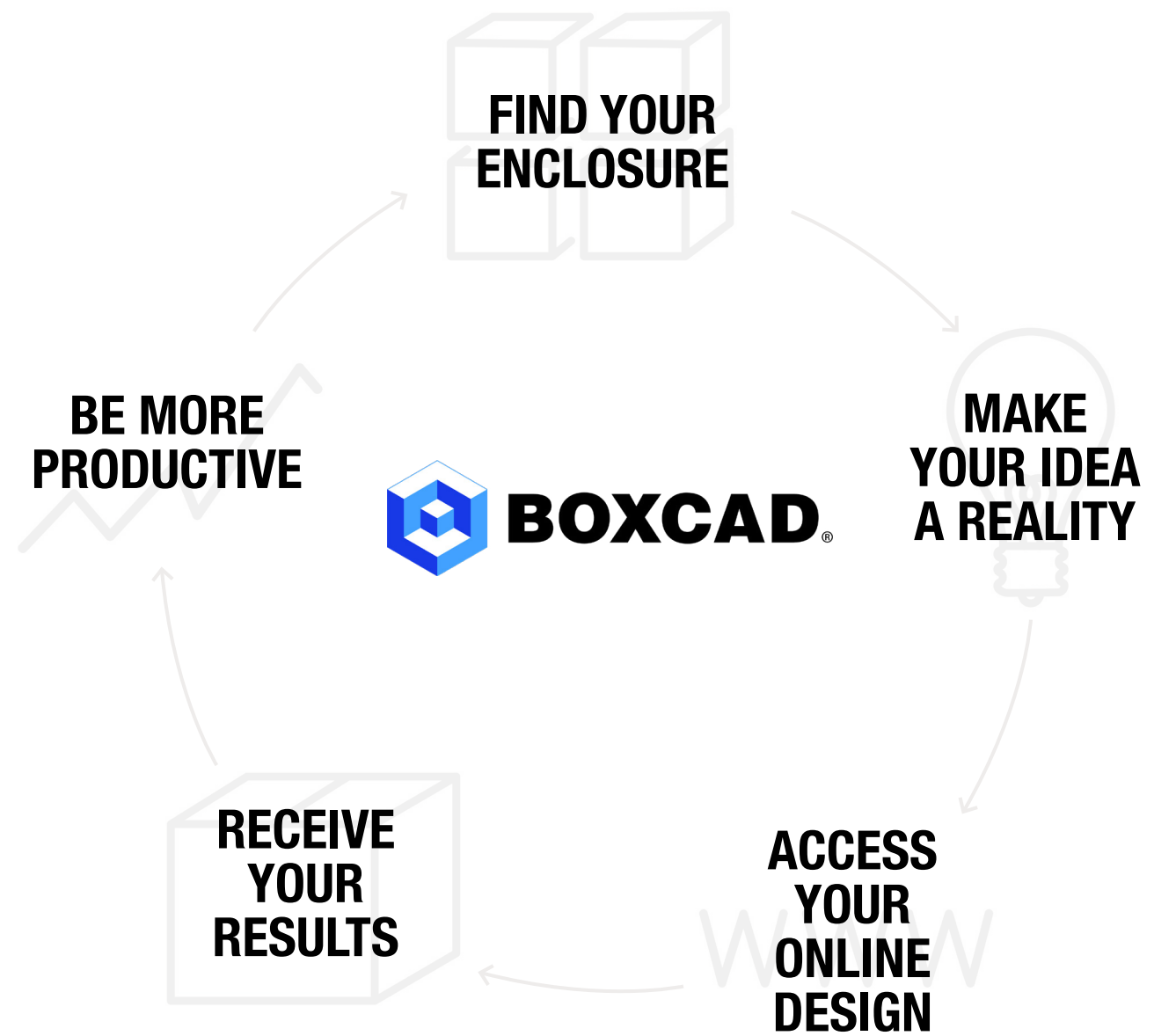BOXCAD@EXMweb.com

VIP Service

Get your own library of cutouts and accessories in BOX-CAD. Ask EXM to add your custom design in BOXCAD.

Training on BOXCAD

Ask your EXM representative to register for one of our BOXCAD seminars. Seminars are conducted by accredited trainers and enable you to obtain a recognized BOXCAD certification.

THE VIP SERVICE FROM BOXCAD EXCEEDS EXPECTATIONS!

FIND YOUR ENCLOSURE

MAKE YOUR IDEA A REALITY

BOXCAD®

ACCESS YOUR ONLINE DESIGN

RECEIVE YOUR RESULTS

BE MORE PRODUCTIVE

BOXCAD ®

START WITH BOXCAD

You are ready to start your BOXCAD project.

ENTER THE BOXCAD ENVIRONMENT AND DISCOVER THE FUNCTIONALITIES MADE AVAILABLE TO FACILITATE YOUR ENCLOSURE DESIGN.

ACESS TO: BOXCADEXM.COM

1. SELECT YOUR LANGUAGE

BOXCAD is offered in three languages, it's possible to select the language before each connection.

2. ENTER YOUR LOGIN INFORMATION

Multiple users can use a single BOXCAD account in order to facilitate the access to your BOXCAD configurations.

3. RETRIEVE YOUR LOGIN INFORMATION

If you forget your password or username, it is possible to request this information by using the email address used to create your BOXCAD account. Simply click on the option «Forgot password».

4. ACCESS THE ACCOUNT CREATION PAGE

5. CONTACT THE BOXCAD TEAM

The BOXCAD team is reachable via instant messaging, email or telephone.

YOUR CUT-OUTS
YOUR SIZE
YOUR COLOR
CUSTOMIZE IT

Choose your language: EN   FR   CH   **1.**

Login   **2.**
Username
Password

ENTER
Forgot password ←
3.
Create new account ←
4.

5.   LET'S CHAT
Online   ∧

? Help   ▷ Video tutorials   ↓ Save project   ⏻ Start a new project

Direct link to EXM website   Contact us   Toll free number 1-800-363-2423

5.

DURING YOUR FIRST USE, IT IS IMPORTANT TO CREATE A USER ACCOUNT.

Please note that your request for a BOXCAD account will be submitted for validation and it will be activated within a short time.

1. ENTER YOUR INFORMATION

A. If you know your EXM representative, it is important to include their contact information, so that person may assist you.

B. It is possible to add up to 5 email recipients linked to your BOXCAD account. Recipients will receive a copy of any operation carried out on the said BOXCAD account.

For example, different stakeholders such as colleagues, designers or buyers may receive a copy of the communications to ensure they are kept up-to-date.

2. OUR NEWSLETTER

We strongly recommend you to subscribe to the BOXCAD newsletter in order to be aware of all BOXCAD innovations.

3. VIDEO TUTORIALS

Several video tutorials have been created to communicate BOXCAD features such as new accessories or functionalities.

Please Enter User Information And Press REGISTER To Submit Your Request (* = Mandatory Field)

* Username
* Password
* Confirm Password
* Your Full Name
* Company Name
* Country
* Province
* City
* Correspondance Language   EN   FR   CN
* Register to Newsletter

CANCEL

* Address
Sales Representative
* Your Email Address
Additional Email Address
Additional Email Address
Additional Email Address
Additional Email Address

REGISTER

? Help   ▷ Video tutorials   ↓ Save project   ⏻ Start a new project
Direct link to EXM website   Contact us   Toll free number 1-800-363-2423

1. LOAD AN EXISTING PROJECT

This option allows the BOXCAD user to review an existing configuration. This option also allows the user to load an existing BOXCAD configuration to make changes and save it under a new name.

Your BOXCAD account can therefore be used to store your EXM enclosure configurations. BOXCAD will conserve in archive the last revision of your configurations.

2. START A NEW COMMERCIAL OR INDUSTRIAL PROJECT

In order to start a new configuration, simply select this option to reach the enclosure selection menu.

3. START A NEW MODULAR PROJECT

In order to start a new modular cabinet, select this option to be redirected to the modular cabinets selection menu.

4. START A NEW DISTRIBUTION PROJECT

BOXCAD allows you to configure your busbar distribution channel, specifying the rating and the required number of wires (3 or 4).
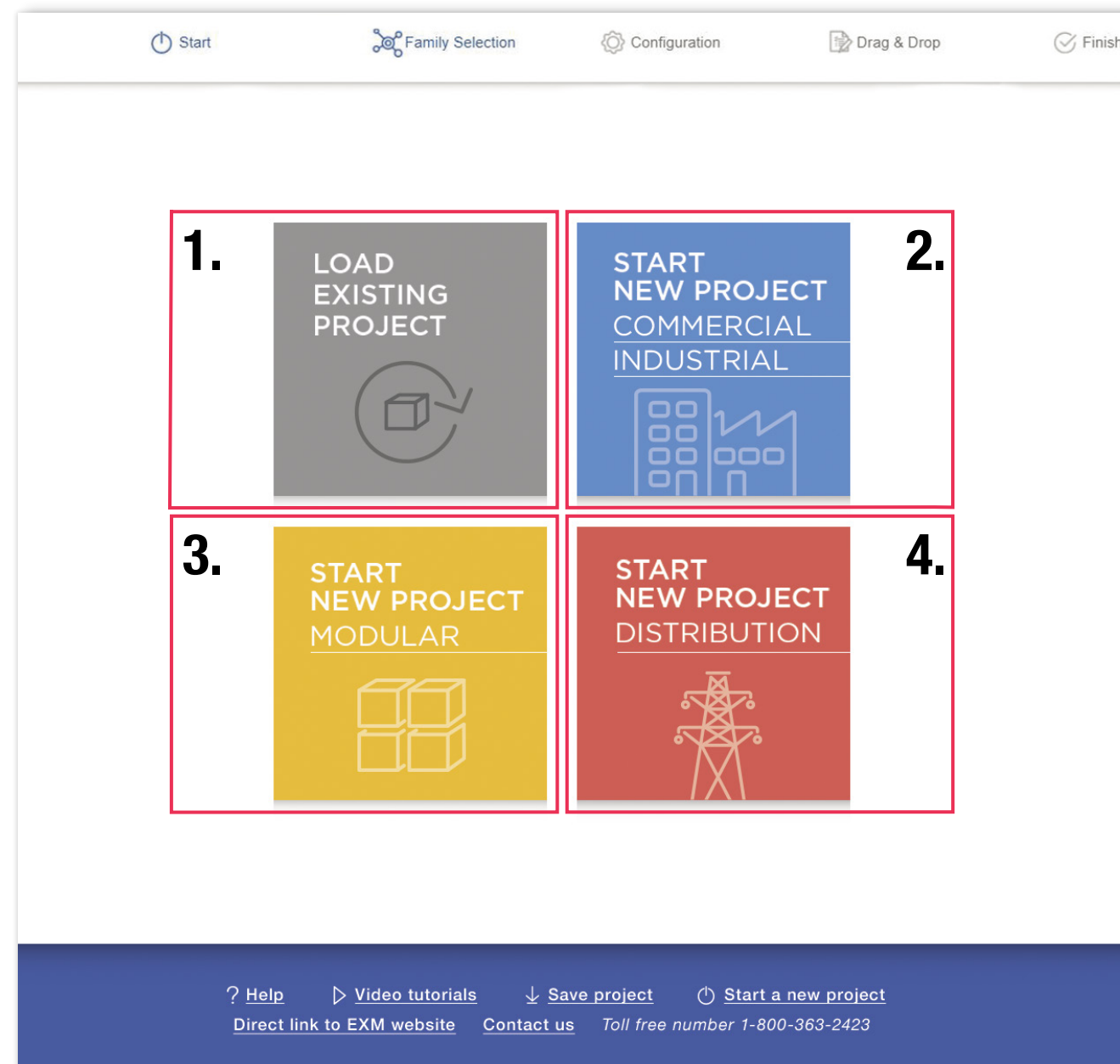
DIFFERENT FAMILIES OF PRODUCTS

Several series of industrial and commercial boxes are available to configure depending on your needs. Simply select the family that meets your requirements according to the criteria available; conception, enclosure usage, hardware, NEMA classification
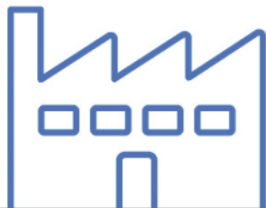
1. ENCLOSURE INFORMATIONS

Find summary information about the selected box, including details of possible dimensions.

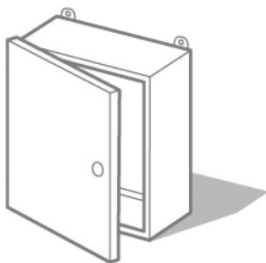## 2. THE ENCLOSURE'S TECHNICAL FILES

Click on the .pdf file icon to open the technical file of the product in question.
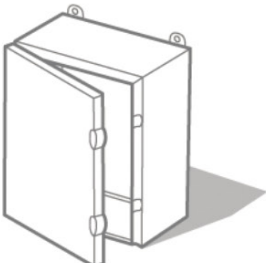
**START
NEW PROJECT**

INDUSTRIAL

CH
Small Utility Enclosure
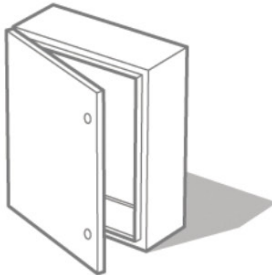
Range:
6" x 6" x 4" to 36" x 36" x 20"

ESMCH
Small Industrial Enclosures
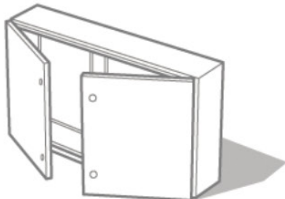
Range:
4" x 4" x 3" to 16" x 14" x 10"

ES Single Door
Medium Industrial Enclosures

1.
Range:
12" x 12" x 3" to 72" x 36" x 24"

ES Double Door
Medium Industrial Enclosures

Range:
16" x 24" x 3" to 54" x 72" x 24"

Consolets
Oil & Dust Tight Consolets
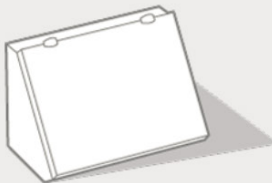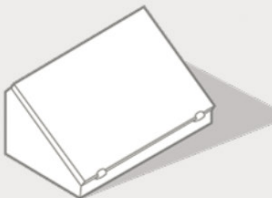
Range:
4" x 4" x 3" to 20" x 36" x 15.963"

Consolets
Product #**1500 CS**
NEMA **4/12**

35° Consolets
Product #**1500 CSD**
NEMA **4/12**

55° Consolets
Product #**1500 CSE**
NEMA **4/12**

2.

START A NEW MODULAR PROJECT

The selection menu allows you to configure single doors and double doors modular cabinets. Then you will be able to specify the required part (door, side panel, etc.) for each side of the cabinet to be configured.

1. MODULAR CABINETS
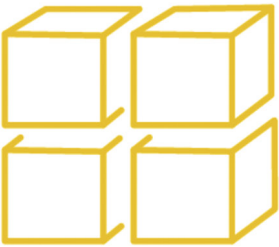
You can modify EXM's NEMA12 modular cabinets.

2. MODULAR CABINET FOR DISCONNECTS

Opt for the series of modular cabinets that can be used with a splitter switch or a circuit breaker. Refer to the technical file to know the various compatible devices.

3.LINE-UP

It is also possible to configure your own modular cabinets line-up.

START
NEW PROJECT

MODULAR

Single Cabinet
Oil and Dust Tight Cabinet

Range:
700mm x 400mm x 400mm to 2200mm x 1800mm x 1600mm

1.

Single Door
Product #**6500 MXKSD**
NEMA   **12/13**

Double Door
Product #**6500 MXKDD**
NEMA   **12/13**

Single Disconnect Door
Product #**6500 MXUSD**
NEMA   **12/13**

2.

Double Disconnect Door
Product #**6500 MXUDD**
NEMA   **12/13**

Line-up
Oli and Dust Tight Cabinet

3.

CREATE YOUR OWN MODULAR LINE-UP

Using existing configurations or by creating new ones, drag the required cabinets one by one in position.

BOXCAD®

Account   Logout

○ 1. **Start**   ⚙ 2. **Family Selection**   ⚙ Configuration   🗎 Drag & Drop   ✓ Finish

‹ Previous   Next ›

MODULAR LINE-UP

Double Door	Single Door	Disconnect	Disconnect
Family Mtrx	Family Mtrx	Family Mtrx	Family Mtrx
Product # 6500 MXK	Product # 6500 MXK	Product # 6500 MXU	Product # 6500 MXU
NEMA 12/13	NEMA 12/13	NEMA 12/13	NEMA 12/13

Line-Up (Drop object here) ↗

⊕ ⊕ ⊕
⊡ ⊡ ⊡
⊗ ⊗ ⊗

Configure the modular cabinet in question

Select an existing modular

Delete the modular cabinet in question

Main Accessories (*)

Select the type of fixing between the cabinets

JOINING-KIT-07	JOINING-KIT-01	JOINING-KIT-02	JOINING-KIT-03
6500 MXJ07	6500 MXJ07	6500 MXJ02	6500 MXJ03
(Quick Clamp)	(Quick Clamp)	(Heavy-Duty)	(Reinforcement)

CREATE YOUR OWN MODULAR MULTI-DOOR

Select Face

Top	Base	Left	Right	Front	⌄ Back

○ NONE   ● 6500 MXPD MULTI-DOORS   ○ 6500 MXD SOLID DOOR   ○ 6500 MXDW GLASS DOOR   ○ 6500 MXDV VENTED DOOR

Material Type
Steel

Paint Finish
Textured

Color

LIGHT GRAY
RAL 7035

Select the required height

Door Layout   MULTI-DOOR MODULAR

Door Height (mm) ⌄

START A NEW DISTRIBUTION PROJECT

BOXCAD allows modifying code compliant distribution boxes, allowing you to specify the rating and the required number of wires.
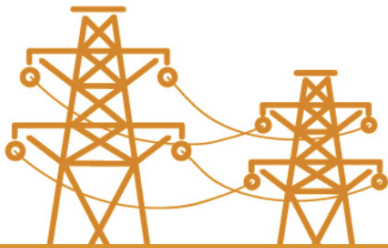
ALUMINIUM BUS BARS

Aluminum bus bars are commonly used for applications requiring the lightness of aluminum (approximately half the weight / amper compared to copper) and a moderate level of rigidity.
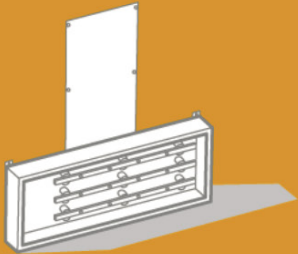
COPPER BUS BARS

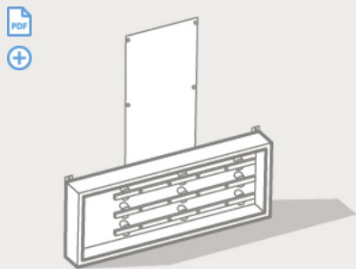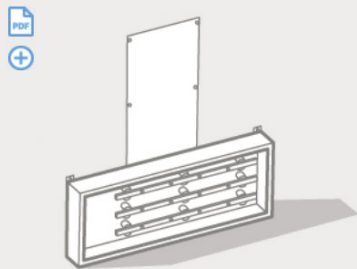**Copper bus bars offer a recognized level of quality in the industry.**

START NEW PROJECT

DISTRIBUTION

Bus Bar
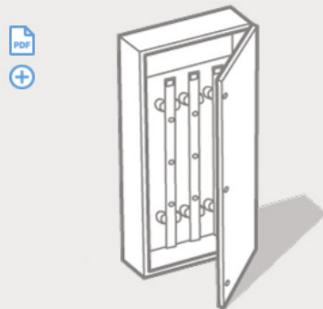Bus Bar Splitter Troughs

Range:
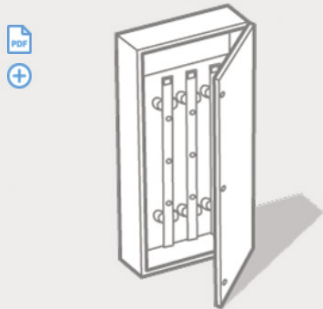225A to 2500A - 3 to 5 wires

Aluminum Bars
Product #**1100BT**
NEMA   **1**

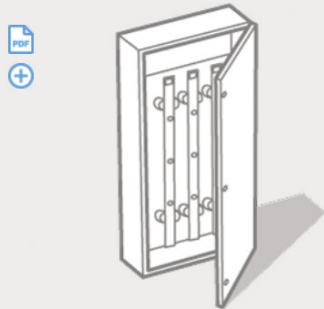**Copper Bars**
Product #**1100BTCU**
NEMA   **1**

Aluminum Bars
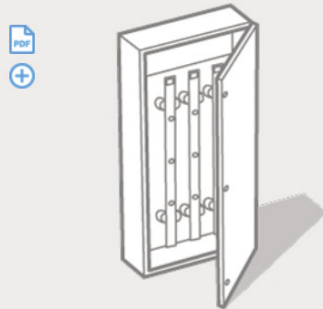Product #**1400BT**
NEMA   **4/12**

Copper Bars
Product #**1400BTCU**
NEMA   **4/12**

Aluminum Bars
Product #**1400BTSS**
NEMA   **4X**

Copper Bars
Product #**1400BTSSCU**
NEMA   **4X**

BOXCAD®

CONFIGURATION

It is now time to configure your EXM enclosure.

CREATE YOUR OWN STANDARDS WITH BOXCAD.

DEFAULT SETTINGS

To facilitate the selection, default settings are pre-selected: the color, finish, locking mechanism and other options correspond to those of a standard EXM product. These settings can be modified according to your needs.

MENU & OPTIONS

The configuration menu and options will differ depending on the enclosure model. In fact, some EXM products offer more options than others. The options are available depending on the design of the selected product. EXM ensures a maximum number of options for each product in BOXCAD.

1. DEFINING THE REQUIRED DIMENSIONS

The user can specify the dimensions of the enclosure using the metric or the imperial system. Please note that the choice of measurement system will be applied in the following stages. It is possible to select a "Catalog" dimension from the drop-down menu, this allows you to quickly select a familiar size.

2. CHOOSING THE RIGHT MATERIAL

Depending on the enclosure's application or the environment where the electrical box will be installed, it is possible to easily select the appropriate material for your configuration.

| Start | Family Selection | Configuration | Drag & Drop | Finish |

INDUSTRIAL

Family **ES**
Product # **5100ES**
NEMA **1**

1.

Enclosure Dimension Selection

○ Catalog   ○ Custom(In)   ○ Custom(mm)

12 x 12 x 06 ▼

Hinge Side

● Left Side
○ Right Side

Enclosure Material Type (**)

2.

● Mild Steel
○ Stainless Steel 304
○ Aluminum
○ Stainless Steel 316

3. SELECT THE FINISH

Opt for different material and paint finishes.
EXM recommend the use of a textured finish for painted
enclosures. We also offera powder coat primer for outdoor use.

4. CHOOSE THE REQUIRED COLOR

Specify the required color from our large selection of paint, we have in
stock. The colors are identified by the RAL classification system.

5. CUSTOM COLORS

You can also specify a color that is not available in the selection;
in this case, our purchasing department will ensure the feasibility
and set a price associated with the special color.
(RAL, PANTONE, ASA, etc.)

6. INNER PANEL

EXM includes an interior panel with most of its enclosures.
If not required, it is possible to remove it. The dimensions of the interior
panel automatically adjust to the dimensions of your enclosure.
When 'No' to Inner Panel is selected, it is possible to remove
the mounting studs required for the installation of the inner panel.

3.

Enclosure Color Texture

○ Smooth
○ Textured

4.

Enclosure Color (*)

WHITE **RAL9003**	IRON GRAY **RAL7011**	VISTA GREEN **RAL6011**	CREAM **RAL9001**
STONE GRAY **RAL7030**	HYDRO **GREEN**	GRAY WHITE **RAL9002**	CARMINE RED **RAL3002**
SKY BLUE **RAL5015**	PEBBLE GRAY **RAL7032**	DEEP ORANGE **RAL2011**	SIGNAL BLUE **RAL5005**
ANSI/ASA 70 LIGHT GRAY **RAL7038**	LIGHT IVORY **RAL1015**	LIGHT BLUE **RAL5012**	LIGHT GRAY **RAL7035**
SIERRA TAN SAND **RAL SIERRA TAN**	BLACK **RAL9005**	ANSI/ASA 61 STANDARD GRAY **RAL7042**	TRAFFIC YELLOW **RAL1023**
FLAT BLACK **RAL9005**	CUSTOM **COLOR** Enter your color		

5.

*   For more information about EXM paint click here
**   To choose the right material for your application Click here

Primer for outdoor application

6.

○ Yes
● No

Inner Panel

● Yes
○ No

7. DEFINE THE INNER PANEL (material / color)

Interior panels are generally made of galvanized steel.
It is possible to specify the material and color nescessary
for your project according to the different options.

8. MOUNTING HOLES

EXM provides mounting holes with most of its wall mounting
enclosures.It is possible to remove them if not nescessary.
If the mounting holes must be re-positioned, they can
be relocated during the Drag & Drop step.

9. ADD DOOR STIFFENERS

The door stiffeners are not pre-selected in BOXCAD.
If necessary, it is possible to add door stiffeners to your configuration.
Door stiffeners are mechanically retained to the door by welded studs.

10. ADD A SWING-OUT PANEL

When adding a swing-out panel to your enclosure,
please specify the distance between the inner door
and the front door, from a minimum of 3" (75mm).

Inner Panel Material

○ Mild Steel
○ Stainless Steel 304
● Galvanized Steel
○ Stainless Steel 316
○ Perforated Steel
○ Aluminum

Inner Panel Color
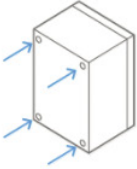
● UNPAINTED
● CUSTOM COLOR

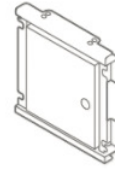Color description

7.
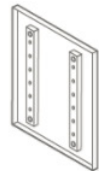
Mounting Holes

● Yes
○ No

8.

Door Stiffeners

○ Yes
● No

9.

Swing-Out Panel

○ Yes
● No

10.

1. ADD A 3-POINTS-LOCK SYSTEM

On enclosures with a height of 20" (500 mm) or more, it is possible to select the optional 3-points-lock system. This system is not offered on standard EXM products of this size. Therefore, BOXCAD allows you to easily opt for this lock system without having to use an engineering service.

2. 3-POINTS-LOCK SYSTEM OPTIONS

The vast majority of EXM enclosures with a height of 42" (1067mm) or more automaticallyhave a 3-point-lock mechanism. Certain types of handles come as standard according to the type of enclosures. It's however possible to select a specific handle for your project.

3. ADD MOUNTING FEET

At the Drag & Drop step, it's possible to select different types of wall mounting feet and position them as required. You will also be asked to define the installation method; bolted, welded or supplied as an assembly kit.

1.

3 Point Lock

● Yes
○ No

2.

Handle Type - 1/4 turn locks

● Mixed
Configure
Configuration

● Key Lock
885 ESL2A
Zinc Casting

● Non-Locking
885 ESL2A-LN
Polyamide GF/Zinc

● Padlockable With Key
885 ESL2A-QLP
Zinc Casting

● Padlockable No Key
885 ESL2A-QLPN
Zinc Casting

● Key Lock
885 ESL2A-SH
Polyamide GF/Zinc

● Key Lock
885 ESL2A-T
Polyamide GF/Zinc

● Key Lock
885 ESL2A-WN
Polyamide GF/Zinc

3.

Accessories (*)

● Mounting Feet
885 ESMF1
Plated Steel

● Mounting Feet
885 ESMF2
Stainless Steel

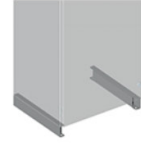● Mounting Feet
885 ESOMF1
Plated Steel

● Mounting Feet
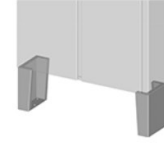885 ESOMF2
Stainless Steel

● Mounting Feet
885 ESOMF1A

● Mounting Feet
885 ESOMF2A

● Mounting Feet
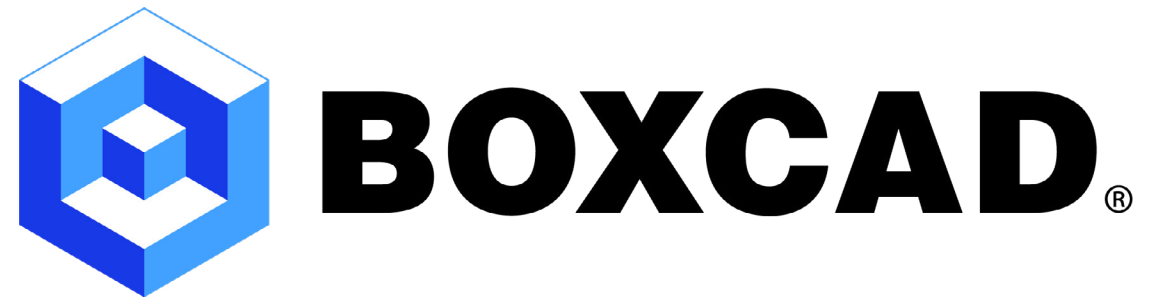880 MFT

● Mounting Feet
885 MF06

BOXCAD ®

DRAG & DROP

The Drag and Drop allows you to fully customize your box.

THE BOXCAD DRAG & DROP INTERFACE OFFERS A PREVIEW OF YOUR CONFIGURATION IN REAL TIME TO FACILITATE MODIFICATIONS.

DRAG & DROP SELECTION MENU

BOXCAD provides the possibility to modify each face of your box. Simply select the face that needs modifications to access the editing window (Drag & Drop).

LEFT SIDE

RIGHT SIDE

BOTTOM SIDE

DOOR

BACK SIDE

INNER PANEL

WORKING IN THE DRAG & DROP INTERFACE

It is possible to add cutouts and accessories on the different faces of all BOXCAD configurations. The work surface has boundaries to easily identify areas where changes are not recommended.
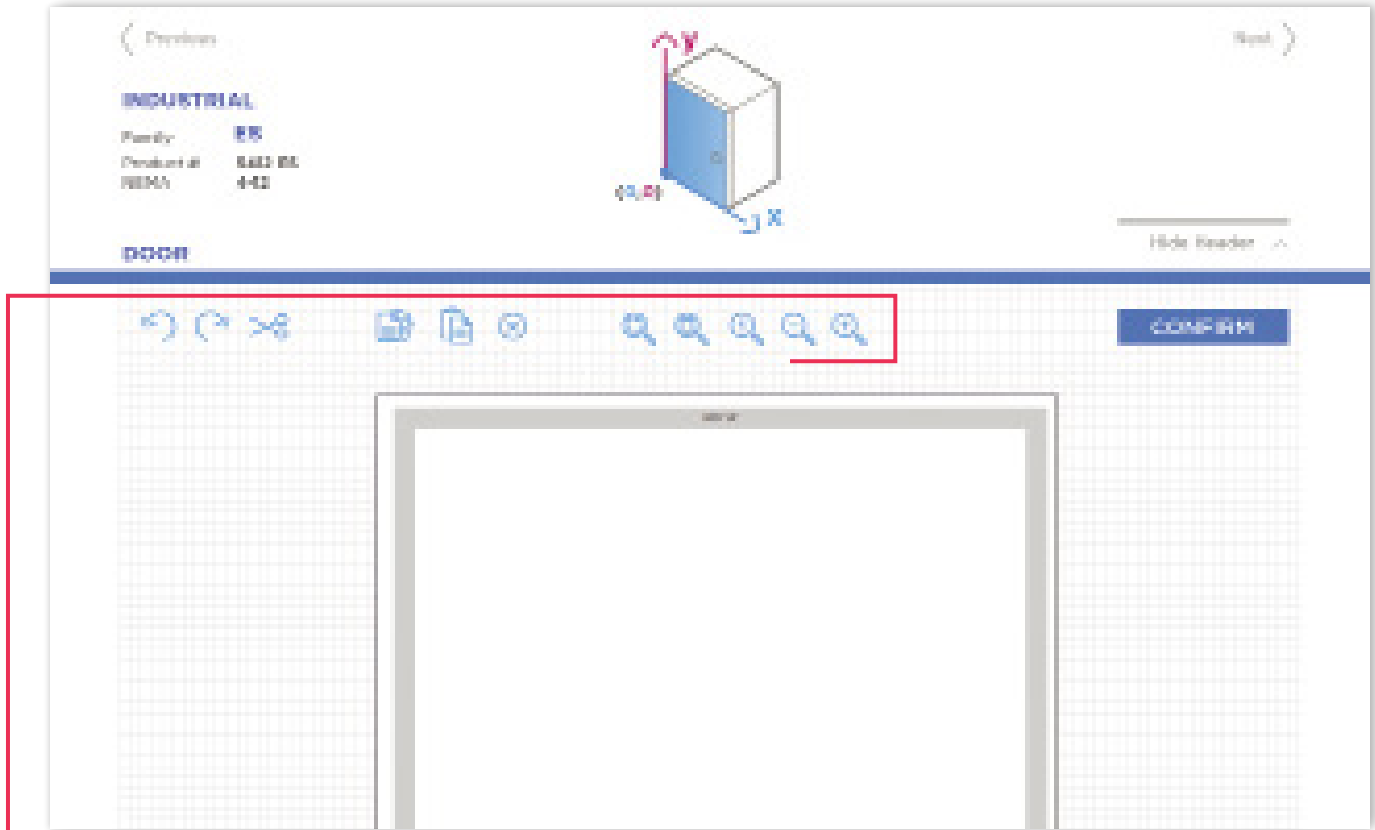
The Drag & Drop Toolbar

The BOXCAD Drag & Drop toolbar offers all the necessary tools to modify your EXM enclosure.

Undo

Redo

Cut

Copy

Paste

Delete

Fit zoom

Initial zoom

Full page

Zoom out

Zoom in
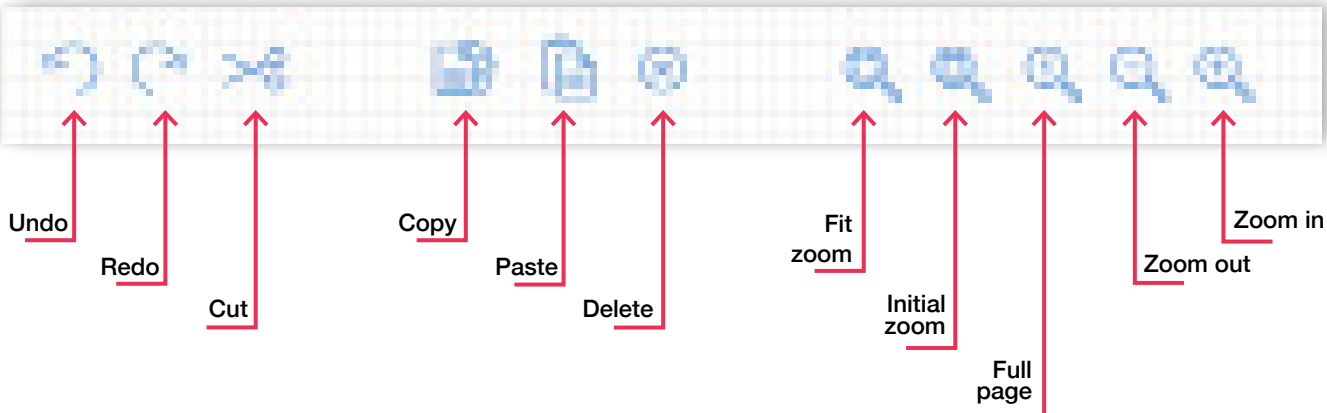
"TOOLS" MENU

The "Tools" menu provides tools that allows you to easily manage the drag & drop interface.

Tools

Select

Drag Page

Grid Pattern

Relative Origin

Information

Help
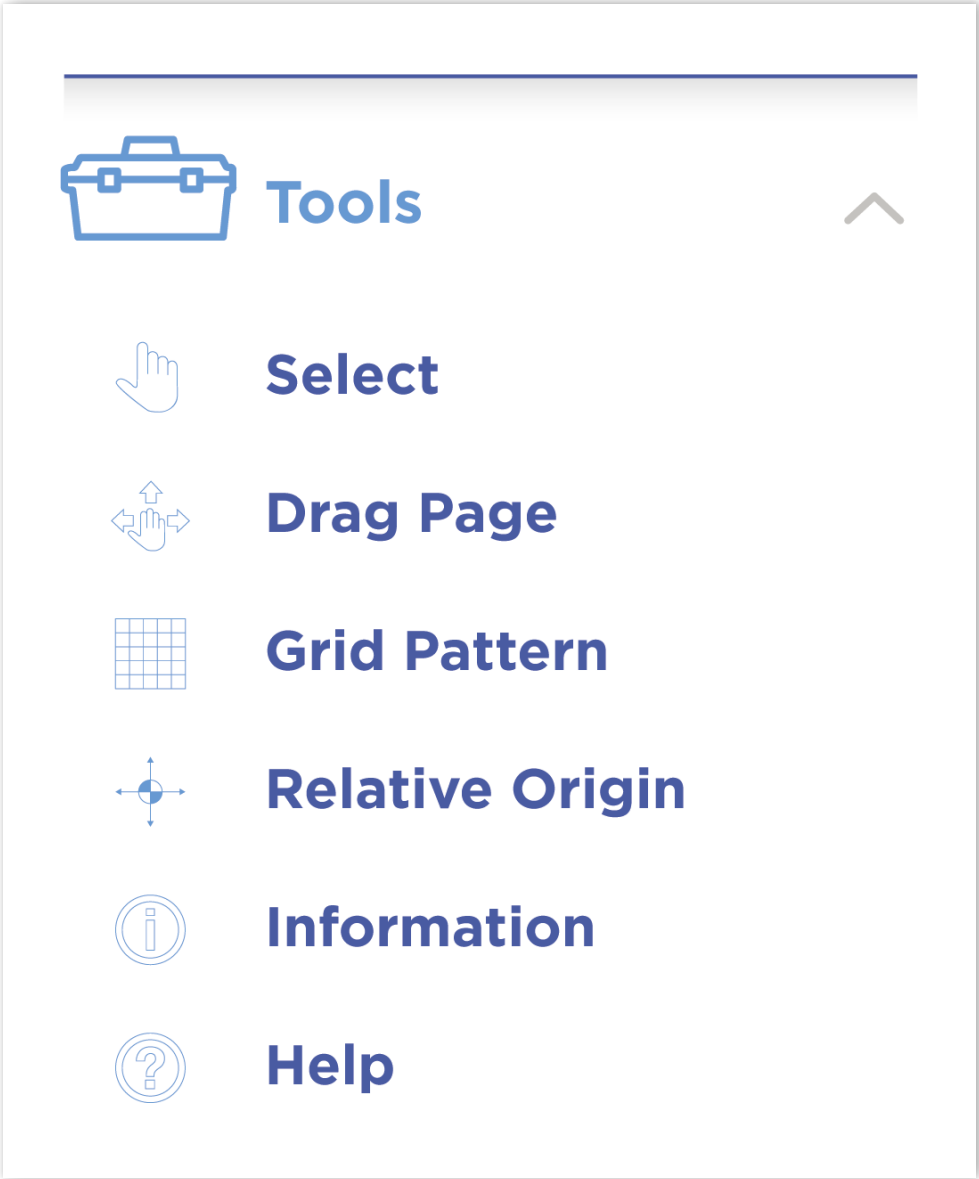
SELECT :

Select items on your work surface and move them.
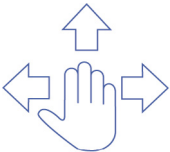
DRAG PAGE :

Move the page to position it at your convenience.
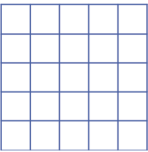
GRID PATTERN :

Access the Grid Pattern parameters window.
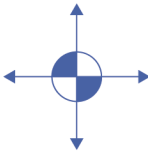
RELATIVE ORIGIN :

Move the origin location.
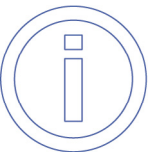
INFORMATION :

Access the real-time information on your enclosure configuration.

HELP :

Access the video tutorials menu

"ACCESSORIES" MENU

The "Accessories" menu allows you to select the available hardware that can be added to any face of your enclosure. Some of the accessories can be installed either on the inside or the outside of the enclosure. Most of the accessories are available in various imperial and metric formats.

Accessories ⌃

- Breathers
- Welded studs
- Welded standoffs
- Ground studs
- Rivet nuts & Pems®
- Filter fans & grills
- C-Chanels
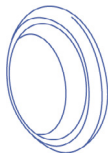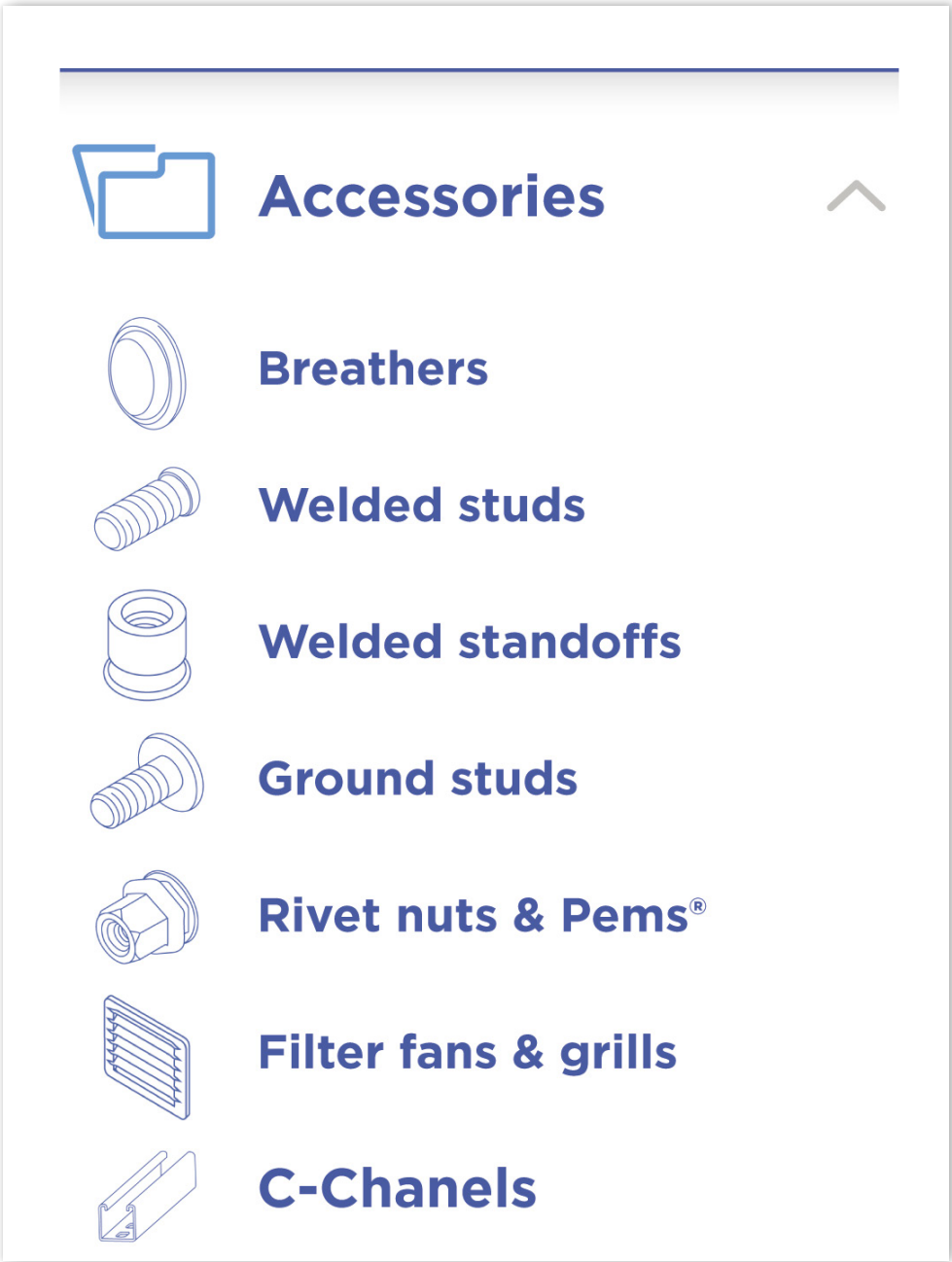
BREATHERS:

In certain environments, it is recommended to install a breather or a pressure condensation device to maintain the integrity of the enclosure and to protect the internal components.
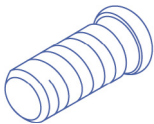
WELDED STUDS:

Welded in place, they can be used with a nut to secure accessories.

WELDED STANDOFFS:

Welded in place, they can be used with a mechanical screw to secure accessories.
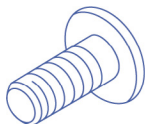
GROUND STUDS:

Grounding points are custom made for EXM and can be located almost anywhere on your enclosure.

RIVET NUTS & PEMS®:

Inserted by pressure, the rivet nuts can be used with a mechanical screw to secure accessories; they are commonly known as "tub-tara". The PEMS can be used with a nut or a machine screw to secure accessories depending on the model.

FILTER FANS AND GRILLS:

Choose OEM fans and grills, the required holes will be made by BOXCAD.
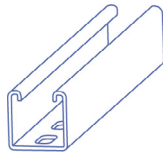
C-CHANELS :

The C-Chanels provide a solid provision to install heavy equipment.
In conjunction with spring nuts, the C-Chanels provides
easy adjustment for mounting.
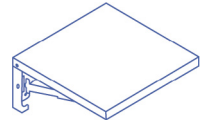
FOLDING SHELF :

OEM folding shelves can be installed by EXM on the different faces of
your configuration. These shelves need little space and fit most laptops.

WINDOW KIT :

Choose a model from the catalogue or opt for a custom made
version by specifying the required size.
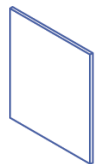
GLAND PLATE :

Gland plates facilitate the entry of cables in the enclosure.
Choose a standard model from the catalogue or opt for a custom size.
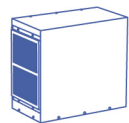
A/C UNIT :

Different types of air conditioning units are available in BOXCAD.
Simply select the required model and EXM will cut the proper
holes required for the installation of the unit.
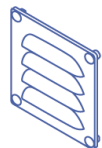
LOUVER PLATE :

Different models of louver plate are available in BOXCAD.
The ventilation plates will be manufactured with the same
material as your box and will have the same finish.
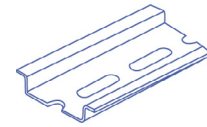
DIN RAILS :

Din Rails are used to install a wide range of electrical components.
At the Drag & Drop step, the user can opt from different models of
Din Rails. These rails are factory assembled, welded or screwed.
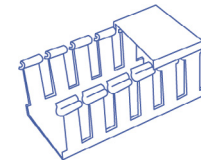
WIRE DUCT:

The wiring ducts are cut to the exact length specified at the
Drag & Drop step. The wiring duct come installed or as a kit.
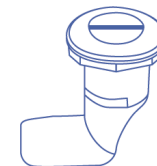
LOCKS :

At the Configuration and Drag & Drop steps, it's possible
to change the locks models. During the Drag & Drop step,
the user can define each lock.
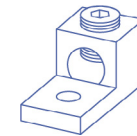
LUGS :

The lugs can be used for grounding purposes.
They can be positioned on any face of your enclosure.

MASKING TAPE :

The masking tape provides a surface free of paint.
The masking tape is applied before the painting process.
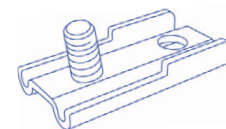
MOUNTING FEET :

The mounting feet can be positioned on any face of your enclosure.
Choose from the different models offered by EXM.

POSITIONING OF ACCESSORIES

1. SELECT AN ACCESSORY

Through the different sub-menus and categories.

2. DRAG & DROP THE SELECTED ACCESSORY

This action allows you to position the selected accessory on the work surface.

3. ENTER SPECIFICATIONS

You can manually enter the positioning coordinates of your accessories.

4. INSTALLATION TYPES

When applicable, the different types of installations will be offered to you in the form of a drop-down menu.
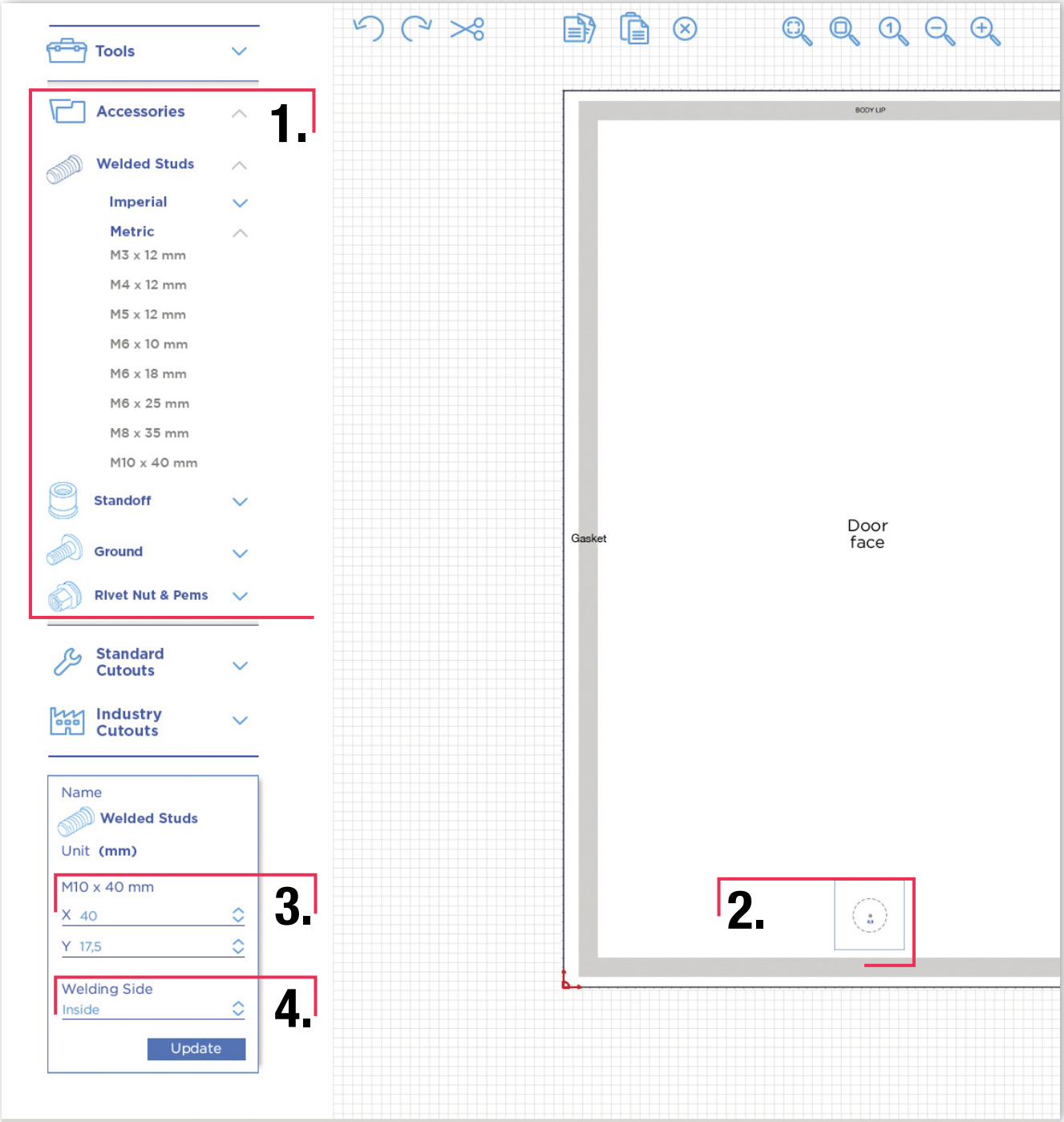
POSITIONING OF THE LUGS

1. SELECT REQUIRED LUG

Choose from the large selection of lugs offered exclusively by EXM.

2. DRAG & DROP ON THE DESIRED BAR

Assign the lugs to their respective bars.

3. SPECIFY POSITIONING INFORMATION

The positioning of the lugs on the busbars is facilitated by the design of the Drag & Drop interface which prevents interference with other elements such as insulators.

4. SPECIFY AN ANGLE

You can specify the angle of installation of the lugs to facilitate the installation of the cables.
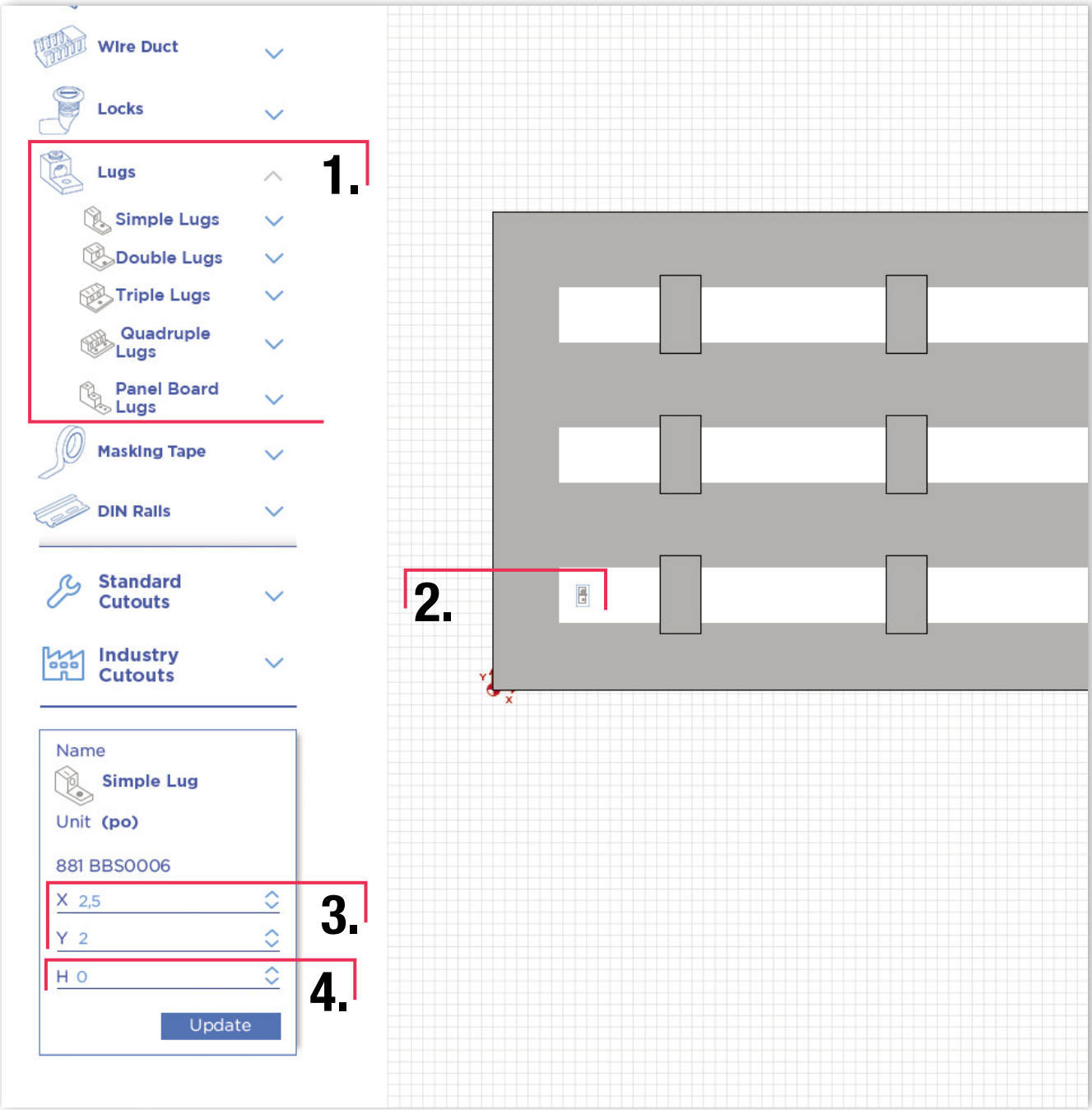
« HOLE » SUB-MENU

Select the desired shape and specify the settings to be applied to this form. Change a round hole by specifying the diameter; add a rectangular cutout by specifying the height and width required. It is possible to add almost any cutout pattern with the parametric hole options.

○ **Standard Cutout** ⌃

○ **Hole** ⌃

   ○ Round

   ⬭ Solt

   ▭ Rectangle

   ▭ Rectangle Radius

   □ Square

   □ Square Radius
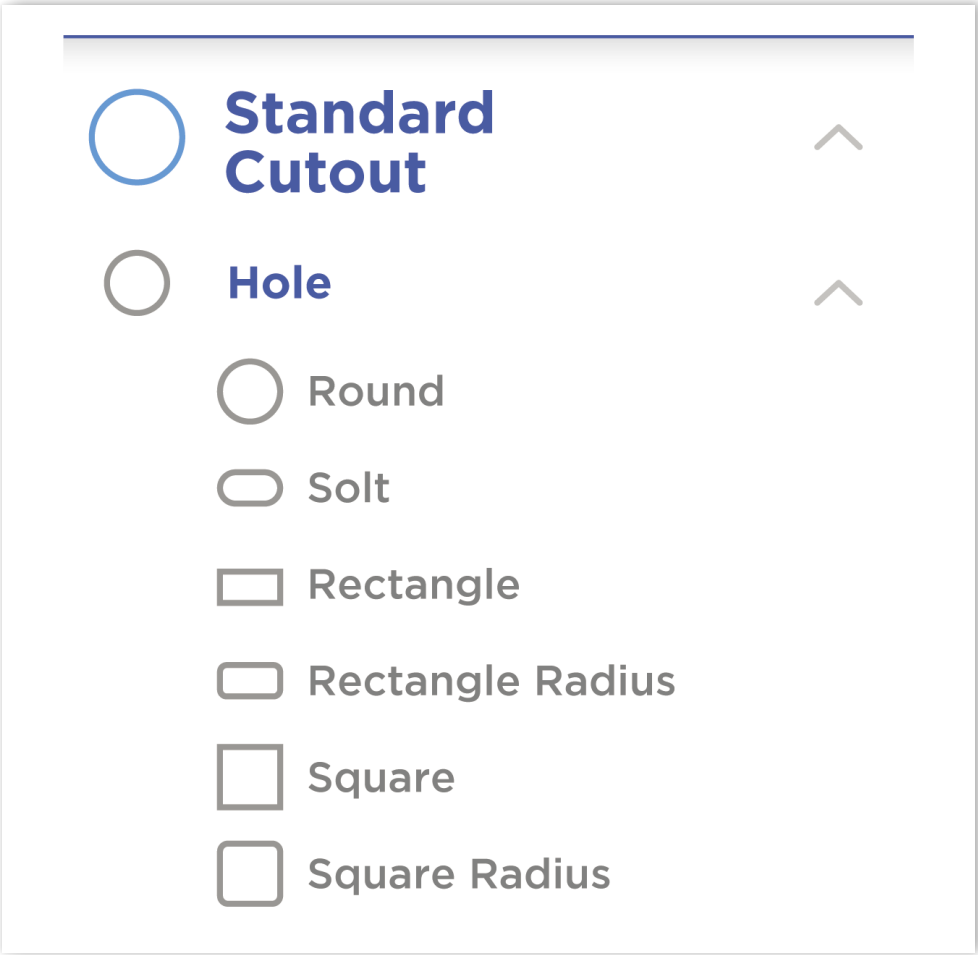
« THREADED HOLE » SUB-MENU

BOXCAD gives you the option to add threaded holes to your enclosure; the threads of the hole will be done at the factory. Choose from a wide selection of threaded holes from the library of recognized standards.

○ **Standard Cutout** ⌃

○ **Hole** ⌄

◎ **Threaded Hole** ⌃

   ◎ **UNF** ⌃

      ◎ 0-80 UNF

      ◎ 2-64 UNF

      ◎ 4-48 UNF

      ◎ 5-44 UNF
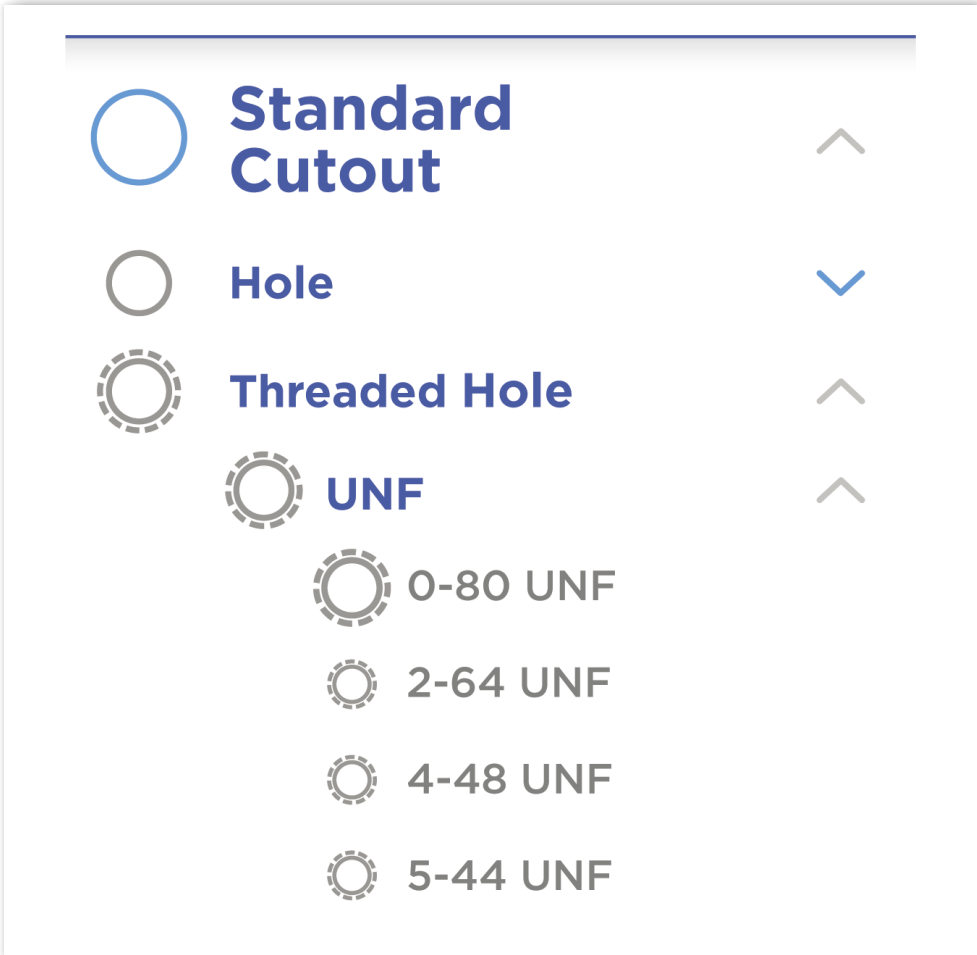
PARAMETRIC CUTOUTS

The BOXCAD product configurator optimizes the configuration through the use of parametric cutouts allowing the creation of hole patterns according to the user's criterias.
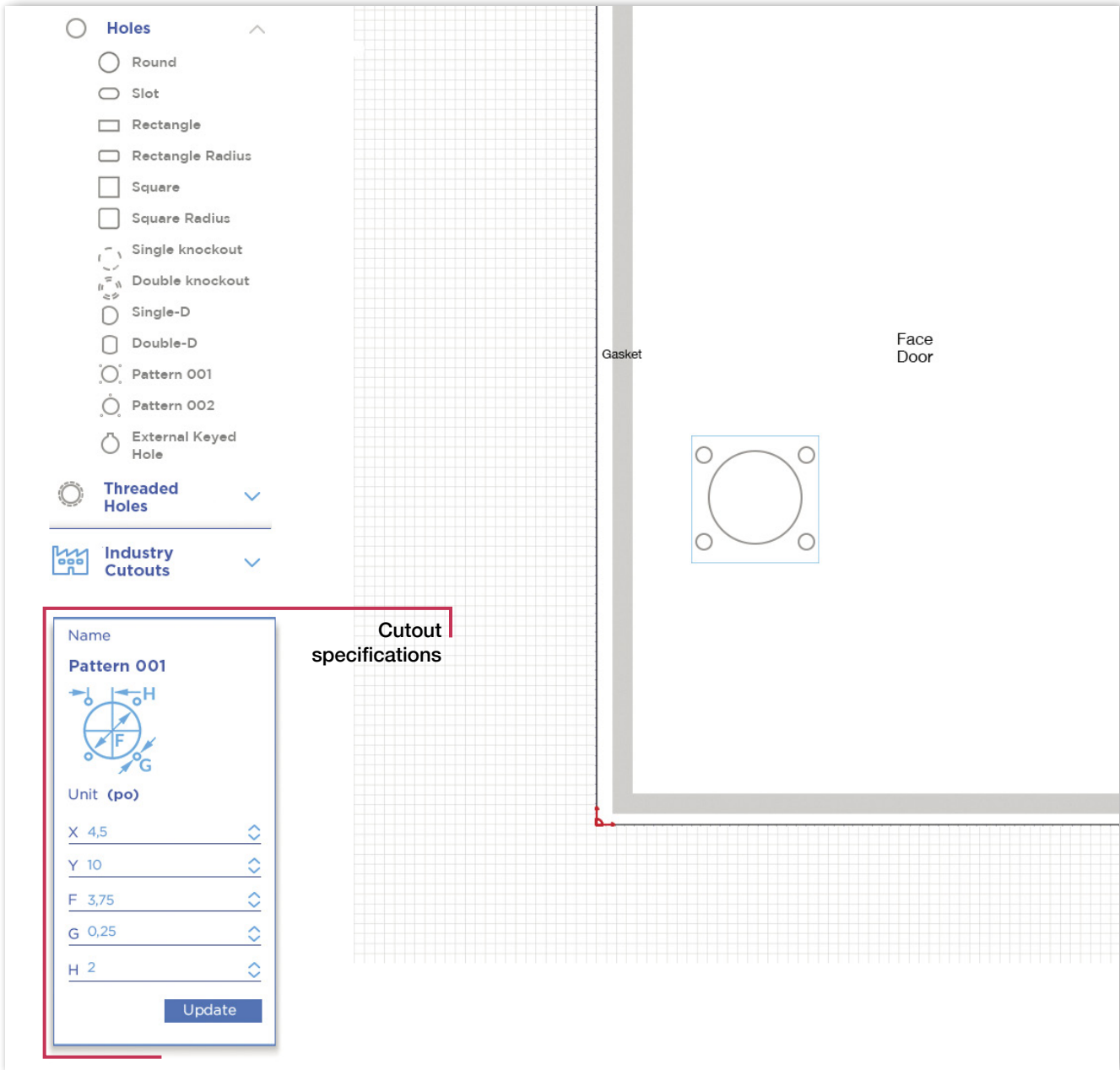
INDUSTRY CUTOUTS

Certain industry cutouts have different parametric features such as the possibility to add a fully customizable angle.
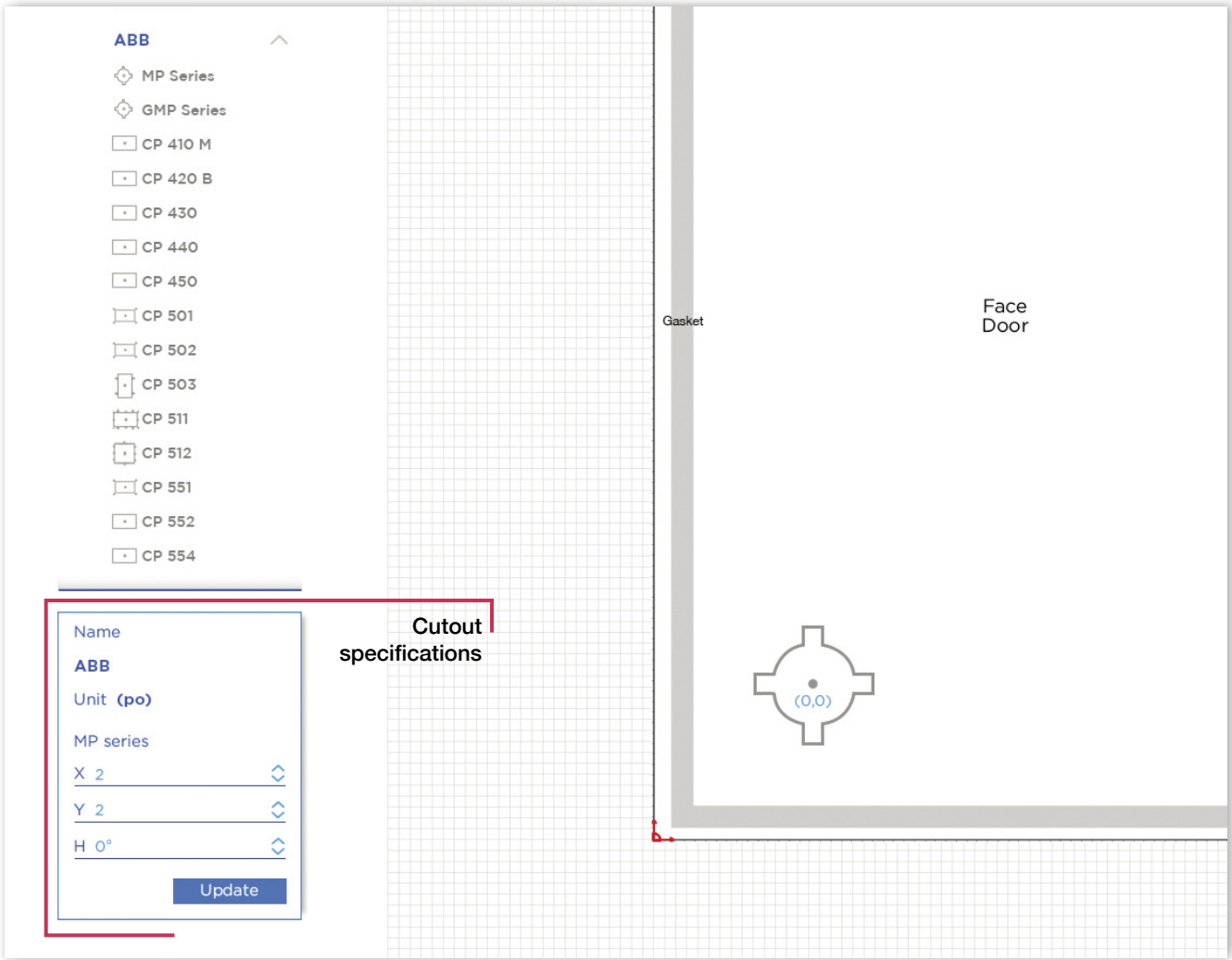
« INDUSTRY CUTOUTS » MENU

The industry cutouts allow you to simply select a component's part number and position the required cutouts in place. Industry cutouts allow the installation of components from different manufacturers. The industry cutouts form take into account the space required for the component that will be installed.

Industry Cutouts

ABB

- ⊕ MP Series
- ⊕ GMP Series
- ☐ CP 410
- ☐ CP 420
- ☐ CP 430
- ☐ CP 440
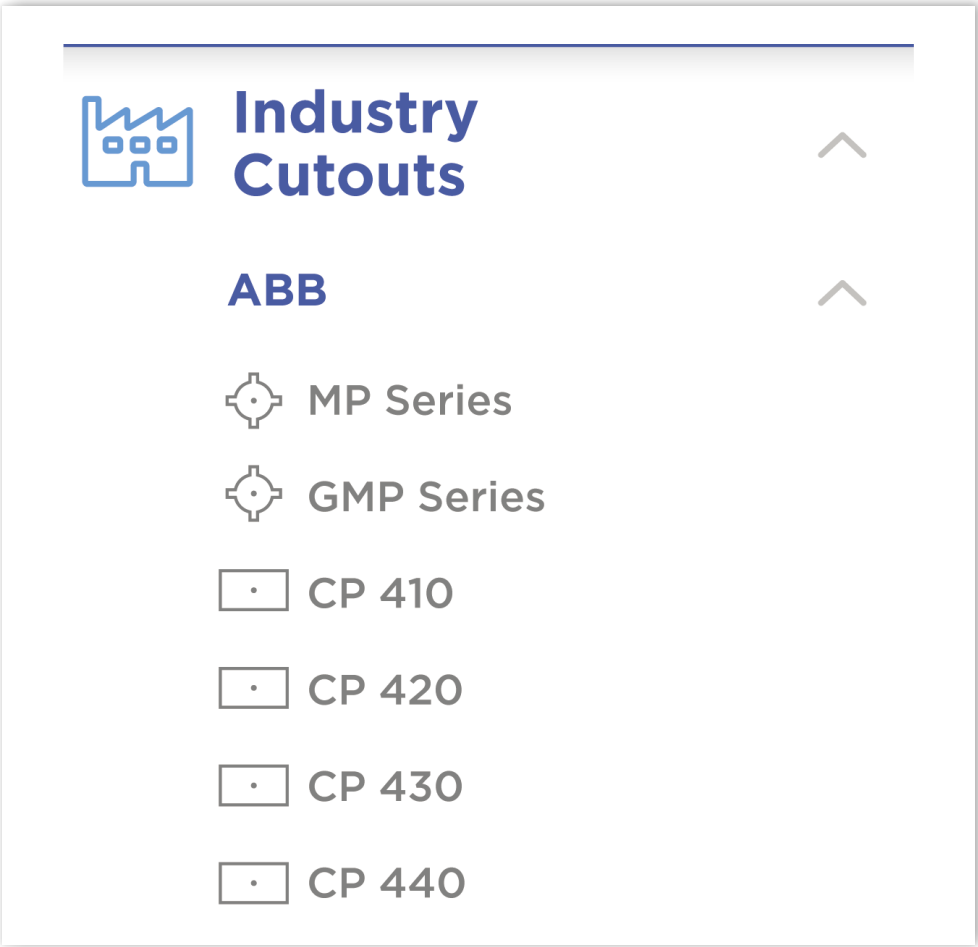
« CLIENT » SUB-MENU

Access your BOXCAD profile-specific menu. Ask the BOXCAD team to add accessories and patterns you frequently use directly in a sub-menu with your company logo and name.

Industry Cutouts

Logo Company Name

- ⊕ MP Series
- ⊕ GMP Serie
- ☐ CP 410
- ☐ CP 420
- ☐ CP 430
- ☐ CP 440

OBSTRUCTED ZONES

The Drag & Drop interface displays obstructed areas. These represent different characteristics of the enclosure such as the location of locks or grounding studs.

Door
face

Lock

Gasket

0,0
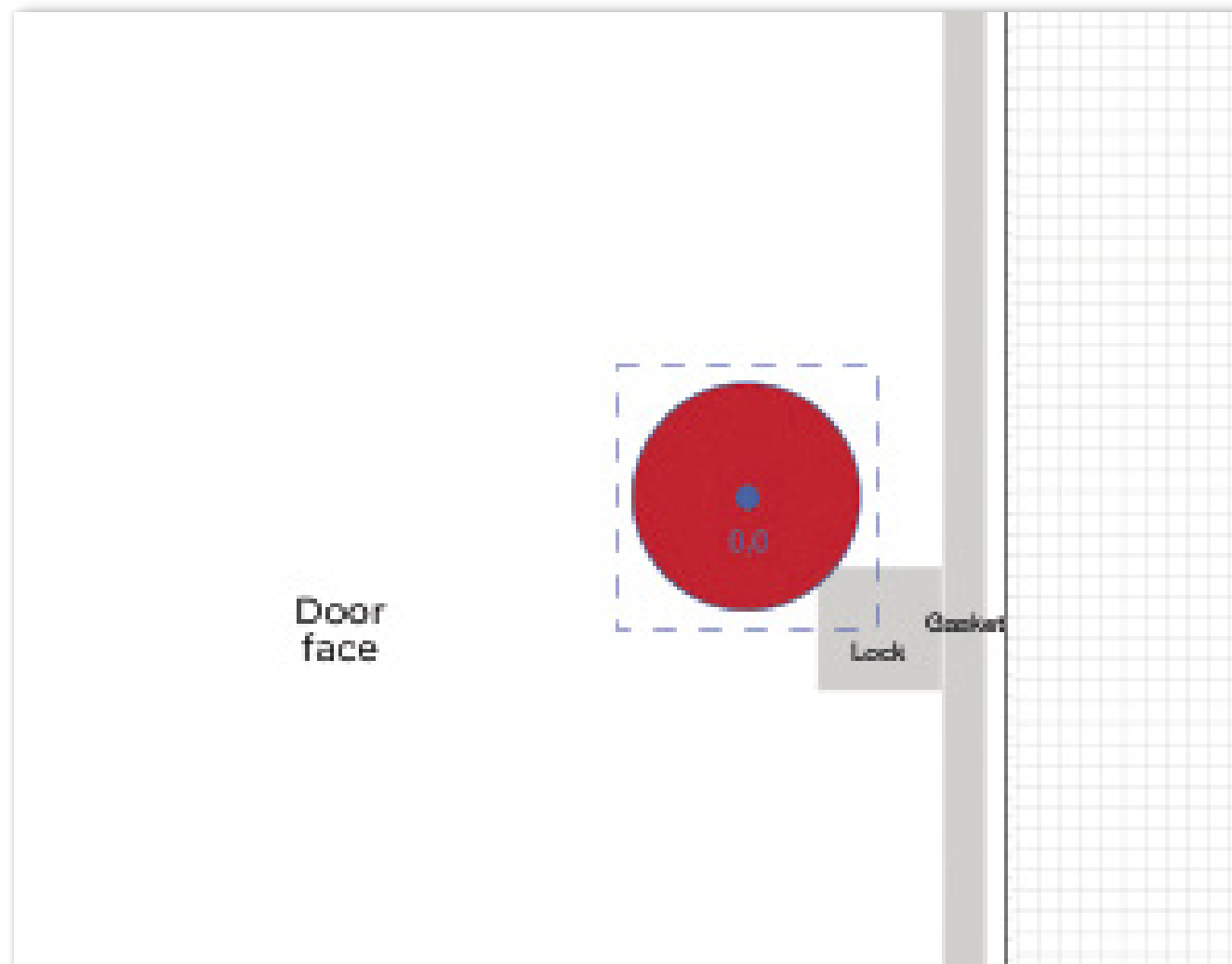
SAVE TOOL

It is possible to save your BOXCAD projects. This way, you will be able to find your projects next time you login to your BOXCAD account. The saved configuration will automatically be added to your existing projects.

A generic identification number can be used, you can however use a custom identification number to meet your specific needs.

VALIDATION OF MODIFICATIONS

When the modifications are completed, a configuration validation will be performed by BOXCAD. This validation avoids errors by validating the position of the holes and accessories.

1. FORCE THE ACCEPTANCE OF A MODIFICATION

Changes can always be manually validated when they are not accepted by the BOXCAD validation process. Simply check the option: ☑

2. SUMMARY OF MODIFICATIONS

The summary of modifications allows you to view all additions made to your EXM enclosure. This summary will be available on your BOXCAD configuration .pdf drawing.
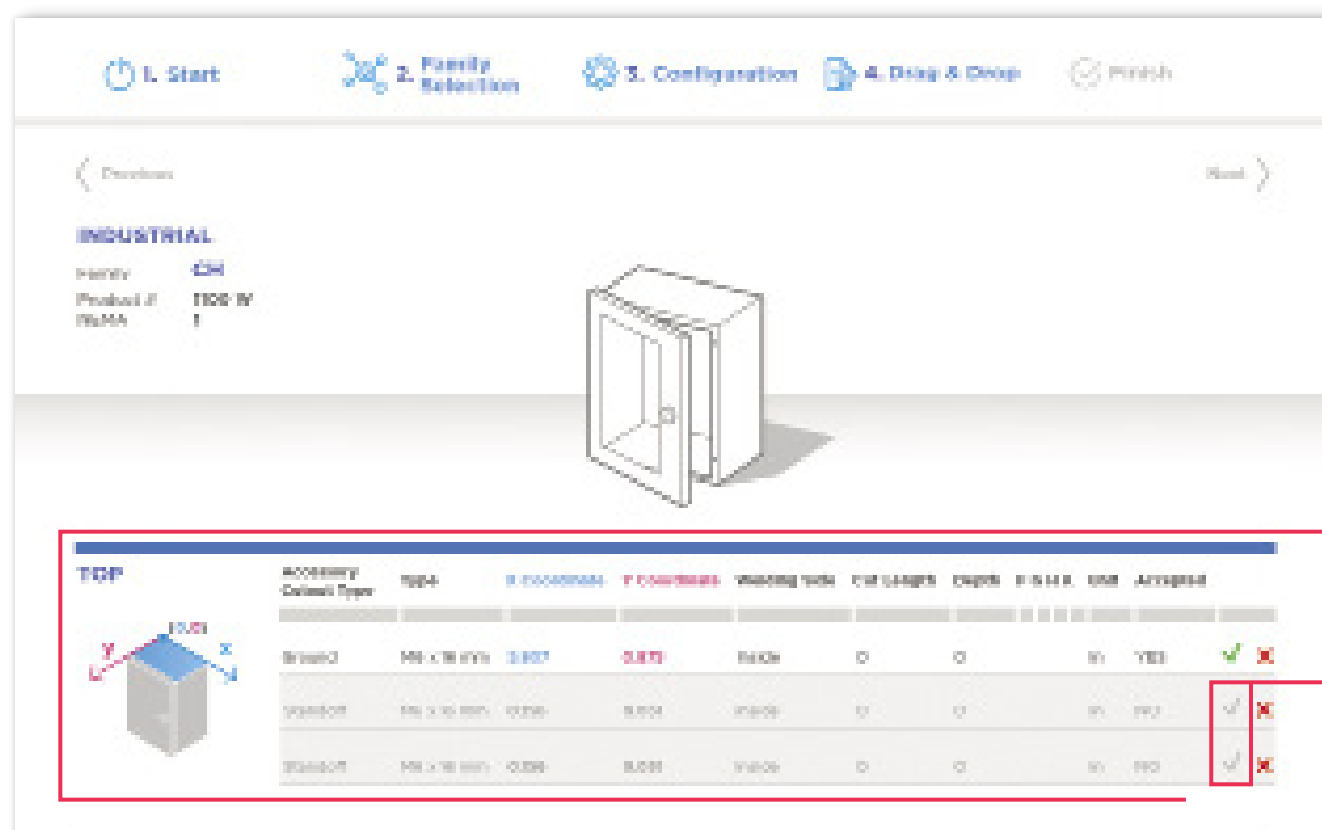
BOXCAD ®

REVIEW MENU

Review and complete your BOXCAD configuration.

YOUR BOXCAD CONFIGURATION IS NOW COMPLETED.

THE REVISION PROCESS OFFERS A GLOBAL PREVIEW OF YOUR DESIGN.

CONFIGURATION OVERVIEW

This summary allows you to quickly view the choices and options relative to your BOXCAD configuration.

Final Summary

Dimensions :	**48 x 36 x 8**	Hinge Side :	**Left**	Inner Panel :	**Yes**
• Material :	**Mild Steel**	Handle Type :	**885 ESL2A**	• Material :	**Galvanized Steel**
• Color :	**ASA 61 Gray**	Door Stiffener :	**No**	• Color :	**Unpainted**
• Finish :	**Smooth**	Special Access. :	**3**	• Finish :	**Unpainted**
• Primer :	**Yes**	Cut-outs :	**0**	• Studs :	**Yes**

A menu will appear when changes are made to a BOXCAD configuration. This menu allows the user to enter information on the changes. This information will be found on the technical drawing and the revision number of the configuration will automatically be adjusted to a higher revision number.

How would you like to create the configuration ID number?

🔘 Update Existing Configuration

Please, enter the revision description (maximum 65 characters)

_____
This field can not be empty

Please, enter the revisor first name (max 9 characters)

_____
This field can not be empty

⭕ Create New Configuration

REPRODUCE A NEW CONFIGURATION

When making a change to an existing configuration, it is also possible to save this configuration with a new identification number while retaining the original product number in your directory.

QUOTATION

By default, BOXCAD offers three levels of quotation (1, 10, and 100). These levels can be changed.

Would you like to modify the default quantity per release for the quotation?

🔘 Yes

Quantity per release for quotation #1

1
_____

Quantity per release for quotation #2

10
_____

Quantity per release for quotation #3

100
_____

⭕ No

IDENTIFICATION OF THE CONFIGURATION

1. A generic number will identify the BOXCAD configuration throughout the sales process. The identification number will be present on your BOXCAD quotation and should be used to place your order. The custom enclosure packaging will also be labelled with its specific ID number in order to facilitate receiving and inventory of different custom enclosures.

2. The part number of the configuration can be specified. Up to 20 characters can be used to identify your configuration. Note that special characters are not recognized. (/ \;: é à etc.) Name it with: job site location. inventory location, job name, e.t.c.

How would you like to create the configuration ID number?

1.

2.

○ Automatically Generated

● Specified by User

This field can not be empty

COMPLETING THE CONFIGURATION

At this stage, the BOXCAD setup is complete. The drawings and quotation will be provided as a compressed (.zip) file to the email address associated with your BOXCAD account.

- It is possible to complete the configuration and to quit BOXCAD.

- You can also opt to complete the current configuration and start a new project.

BOXCAD®

Account   Logout

1. Start   2. Family Selection   3. Configuration   4. Drag & Drop   5. Finish

Configuration ID: 17-035171

Should you require to edit or reload this request simply open a new session of BoxCAD and reload the ID number.
Your deliverables will be sent to cpiazzesi@acanto.net shortly.
If the email or files are not available within one working day, please contact our BoxCAD administrator via email at:
boxcad@exmweb.com

START NEW PROJECT

As a preventive measure, if the browser is closed at this stage, your configuration will be automatically saved to your projects.

BOXCAD ®

EXERCISE

Create your BOXCAD configuration by following the instructions.

TRY TO GET THE SAME RESULT BY BUILDING THIS BOXCAD CONFIGURATION YOURSELF, FOLLOW THE DIRECTIONS AND THE PROVIDED SKETCHES:

1. SELECT SIZE :

42.7 x 31 x 23 inches | NEMA 4-12

2. SELECT COLOR :

RAL5015

3. SELECT PAINT FINISH :

Textured

4. SELECT INNER PANEL MATERIAL :

Galvanized steel

5. SELECT TYPE OF HANDLE :

Stainless steel key handle with padlock provision

6. ADDITION OF A SWING-OUT PANEL :

3 inches from the door

7. ADDITION OF EYEBOLTS :

Plated steel

8. ADDITION OF 2 WALL MOUNTING FEET :

**885 ESMF1-closed, positioned 7 inches
from the respective ends, welded**

9. DOOR :

**- Add a custom hinge window kit, open box face
- Add cutouts for 22.5mm push buttons
- Add an air grill with filter, 880 GP150
- Move the location of the CSA/UL sticker to the bottom left
- Move the ground stud**

10. ADDITION OF 6 INCHES MOUNTING FEET UNDER THE CABINET :

Right foot :
- Addition of an oblong cutout

Left foot :
- Additions of 2 inches round cutouts

11. RIGHT SIDE :

**- Add a vertical slim mount air conditioning unit,
1200 BTU-120Volts, NEMA 12**

12. SWING-OUT PANEL :

- Add a custom window kit

- Add knockouts

13. INNER PANEL :

**- Add pattern 001 cutouts
- Add masking tape, outside**

14. PROCEED WITH THE CONFIGURATION

Drip Shield

7"
7"
42,7"
6"
31"
23"
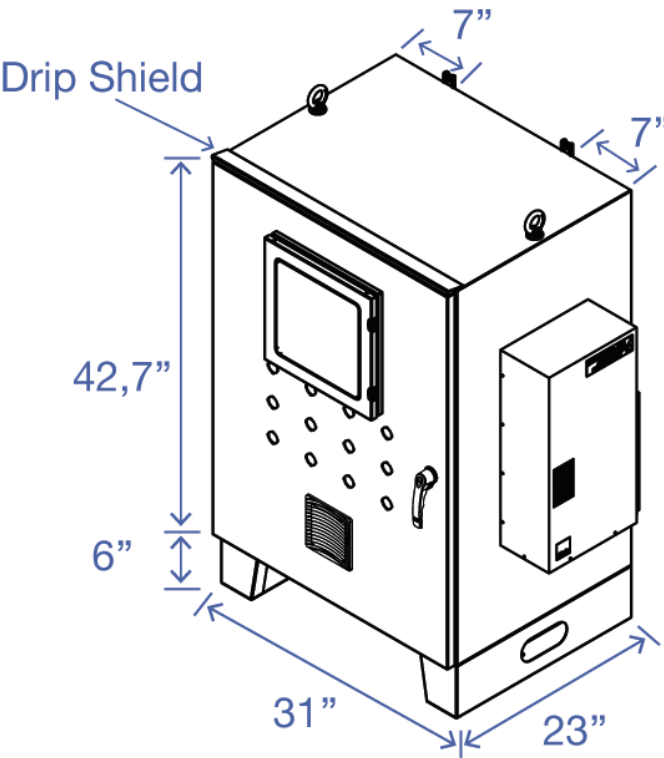
View of the right and left sides:

Left Side &
Left Mounting Feet

ø 2"
5" 5"

Right Side &
Right Mounting Feet

22"
ø 2.5"
6"
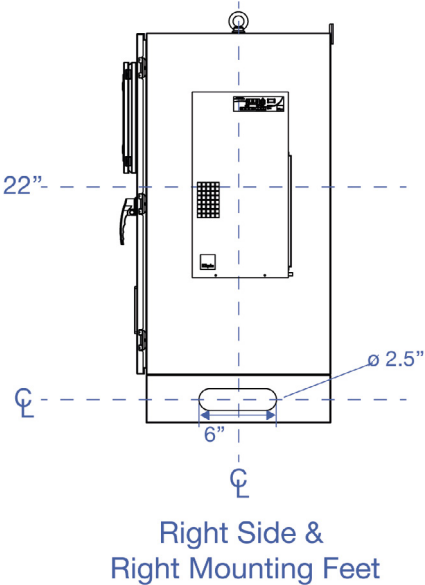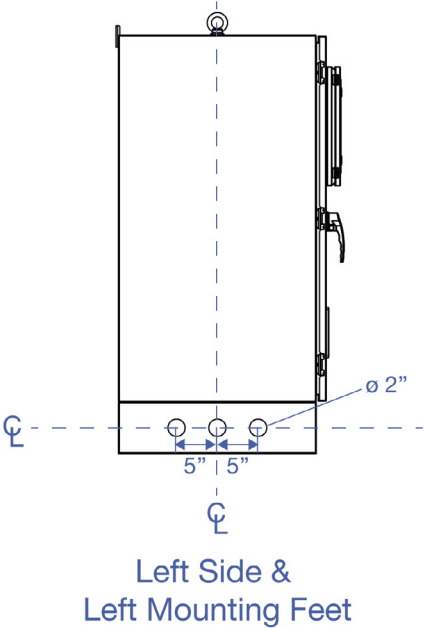
View of the door and bottom:

880 HWK
13.875" x 14"

885 ESL2A-QLPSS

32"

4"
4"
15"
5"
8"

12x 22.5mm
Push Button

880 GP150

880 GP18"x9"

Door
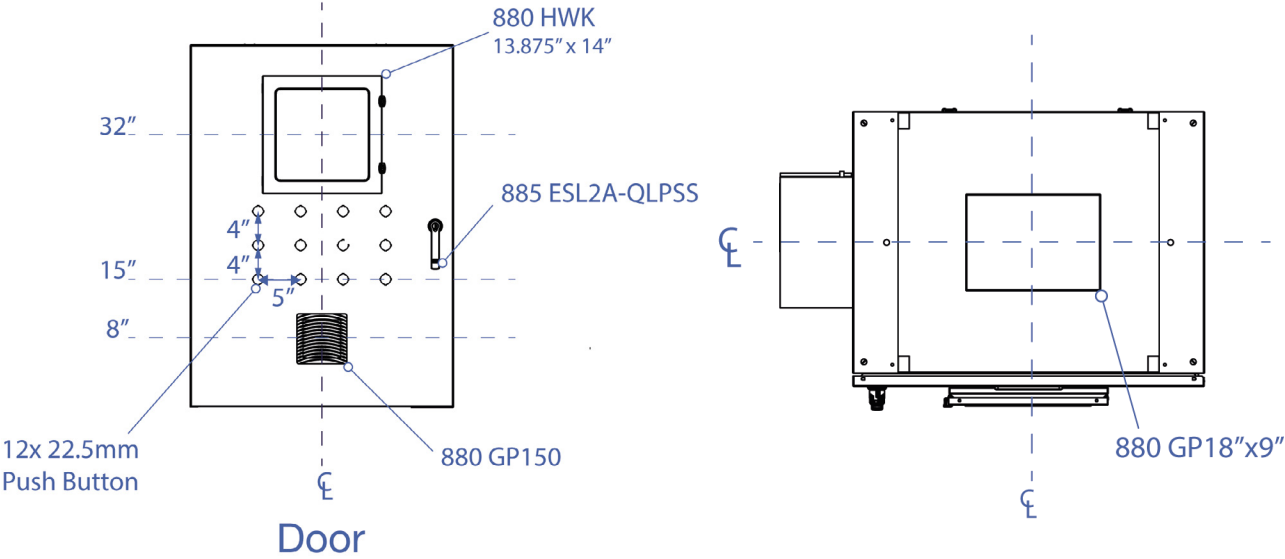
View of the swing-out panel:

880 WK
18" x 12"

28"

14.5"

4x K-O Ø 2"

3" 6"
3"
3"
9"

Interior Door

View of the inner panel:

26,5"

Masking Tape
1,75" x 0,75"

38"

30,5"

.10" .10"

Ø 1,50"
Ø 0,25"

5"
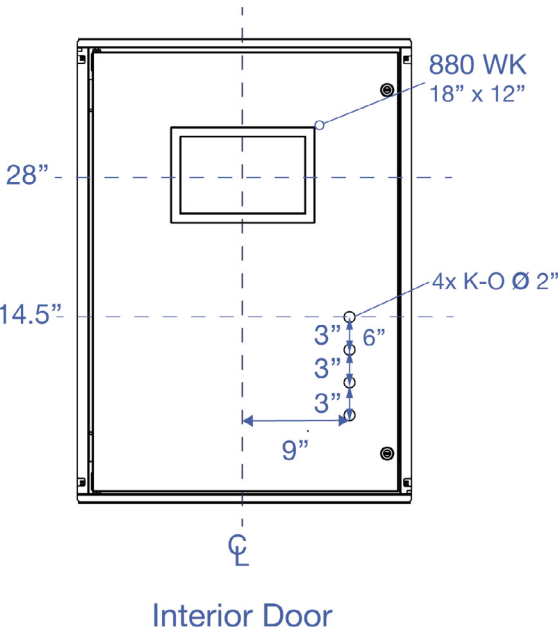
Inner Panel
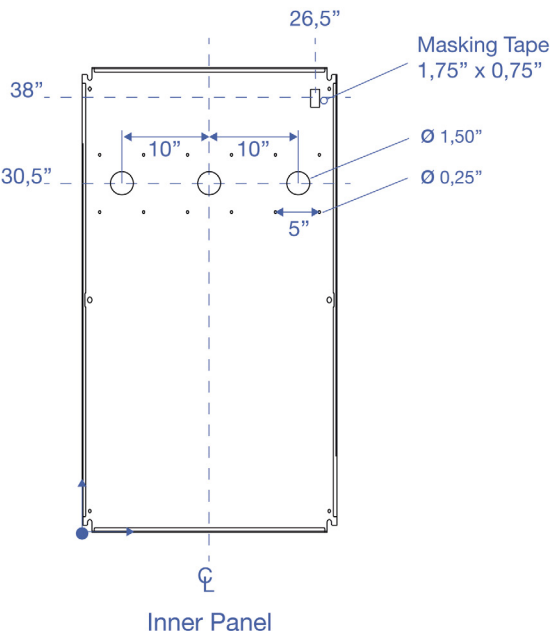
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RESULTS

Review your BOXCAD results.

YOU WILL RECEIVE YOUR QUOTATION AND DRAWINGS BY EMAIL.

EXM Manufacturing Ltd
870 Michele-Bohec
Blainville, Quebec, Canada
J7C 5E2
Tel.: 450-979-4373
Fax: 450-979-4626

BOXCAD®

QUOTATION

To:

EXM (Changshu) Manufacturing Ltd.
Building 21, No. 6, Maqiao Road
Changshu City, Jiangsu Province, P.R.China
J7C 5E2

Contact:

Annie Yin Zhi
Tel.: 450-979-4373
Fax:
annie@exmweb.com

Quote no.	Territory	Date	Expiration
BOXCADhandbook	Jiangsu Province	26-Nov-2015	26-Dec-2015

Quantity	Product No.	Description	Unit list price	Amount
1	BOXCADhandbook	5412ES 42" x 30" x 20" Enclosure (NEMA 4/12) Material: Mild Steel Color: Sky Blue RAL5015 Finish: Rough Textured c/w: 21 Cut-outs c/w: 4 Mild Steel Studs	USD 2,020.78	USD 2,020.78
1	BOXCADhandbook	881 SP 42" x 30" Inner Panel Material: Galvanized Steel Color: White RAL9003 Finish: Smooth	USD 473.84	USD 473.84
1	885 ESL2A-LSS	5412 ESS Stainless Steel L-Handle	USD 131.67	USD 131.67
1	880 SKWHD4230	Swing out panel for 'ES' series enclosure Material: Mild Steel Color: ANSI/ASA 61 Standard Grey RAL7042 Finish: Smooth	USD 484.82	USD 484.82
1	880 EB14SS	SS Eye Bolt M14 (Pack of 2)	USD 77.81	USD 77.81
1	BOXCADhandbook	Floor Mounting Stands 6" x 20" Material: Mild Steel Color: Sky Blue RAL5015 Finish: Rough Textured	USD 312.85	USD 312.85
1	IQ1200VS-126	Air Conditioner 1200 BTU/HR	USD 5,445.80	USD 5,445.80
1	880 GP150	European styling air grill with filter	USD 30.48	USD 30.48

Estimated Shipping Weight: Enclosure - 112.9 Lbs/Each
Inner Panel - 31 Lbs/Each

The quotation is LIST price, apply your multiplier to get your NET price. Ask for your discount

BoxCad Order:	Ship 4 to 6 working days (6 to 8 days for stainless steel)	**Total list price**	**USD 8,978.05**

Should you require any further information, please do not hesitate to contact us.

Terms: Net 30 Days
FOB Our plant
Tax: Extra

Prices subject to change without notice.

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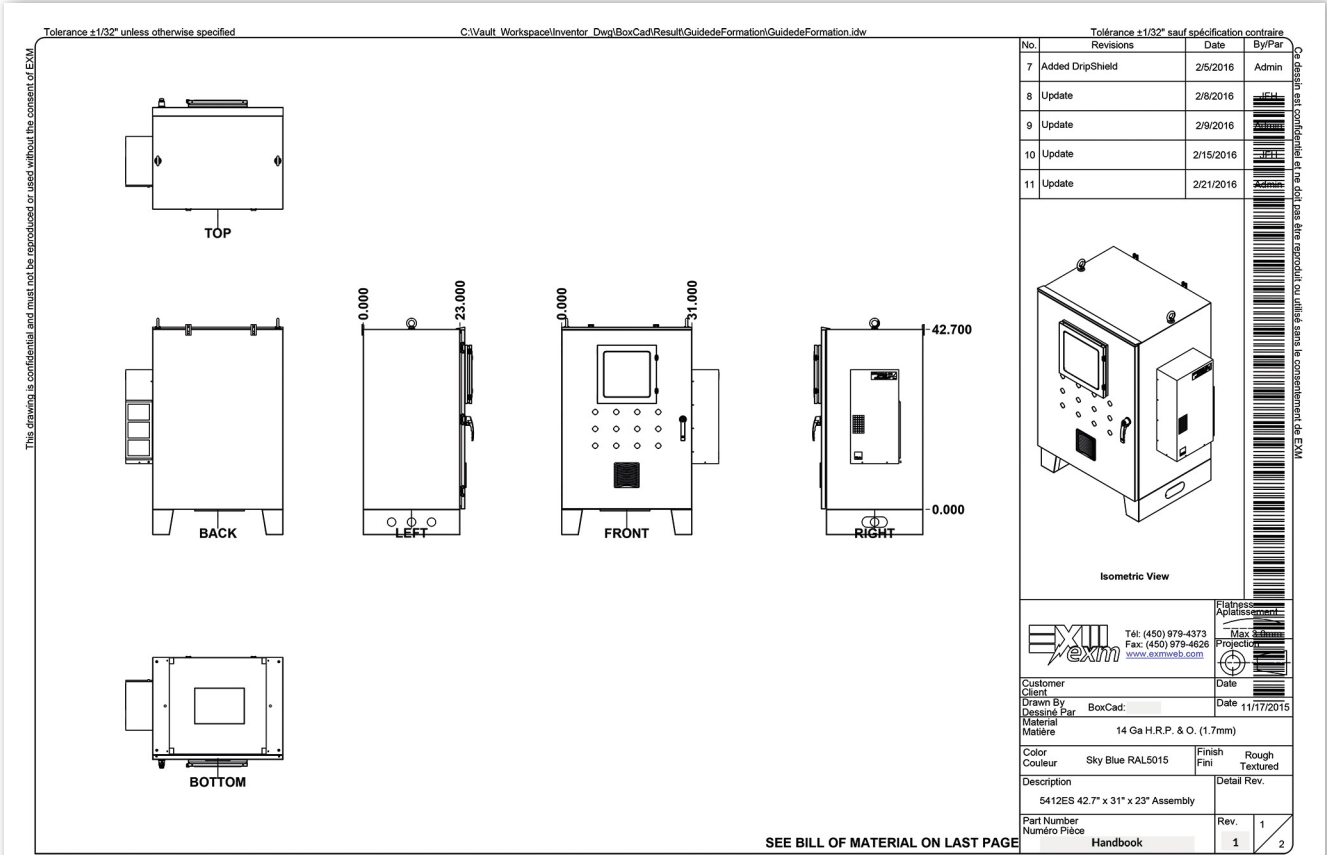
BOXCAD ®

VALUE ADDED SERVICES

Additional services are provided to complete your BOXCAD configuration.

SHOULD YOU MAKE IT YOURSELF OR OUTSOURCE?

WITH THE VALUE ADDED SERVICES OFFERED BY EXM, WE ALLOW YOU TO SPEND MORE TIME ON YOUR CORE CAPABILITY TO FACILITATE THE COMPLETION OF YOUR PROJECTS.

1. DIGITAL PRINTING SERVICE

EXM offers the latest technology in printing services, offering high quality printing directly on your electrical enclosure.

EXM's quality equipment provides superior printing results. The printing of your graphics is consistent, durable and offers excellent resistance to scratches. Compared to the use of stickers & lamicoids, graphics will be constant on every box.

Printing requires a high-quality image in order to achieve quality results.

DISCONNECT HANDLE INSTALLATION SERVICE

EXM now offers the complete installation of through the door disconnects. Simply specify the disconnect kit required and EXM will install it on your enclosure.

Our team of experienced installers will assemble the disconnect switch on your enclosure's inner panel.
EXM will ensure that the holes required on the inner panel are created for a perfect fit.
Including the connecting shaft from the door to the disconnect.

INSTALLATION SERVICE/ADDING INSULATION

It is possible to add R5 insulation to the vast majority of EXM enclosures. The insulation is cut using a CNC machine, which offers a high level of precision and provides exceptional results. Our qualified staff will install the insulation. EXM is proud to offer CSA/UL certified insulated enclosures.
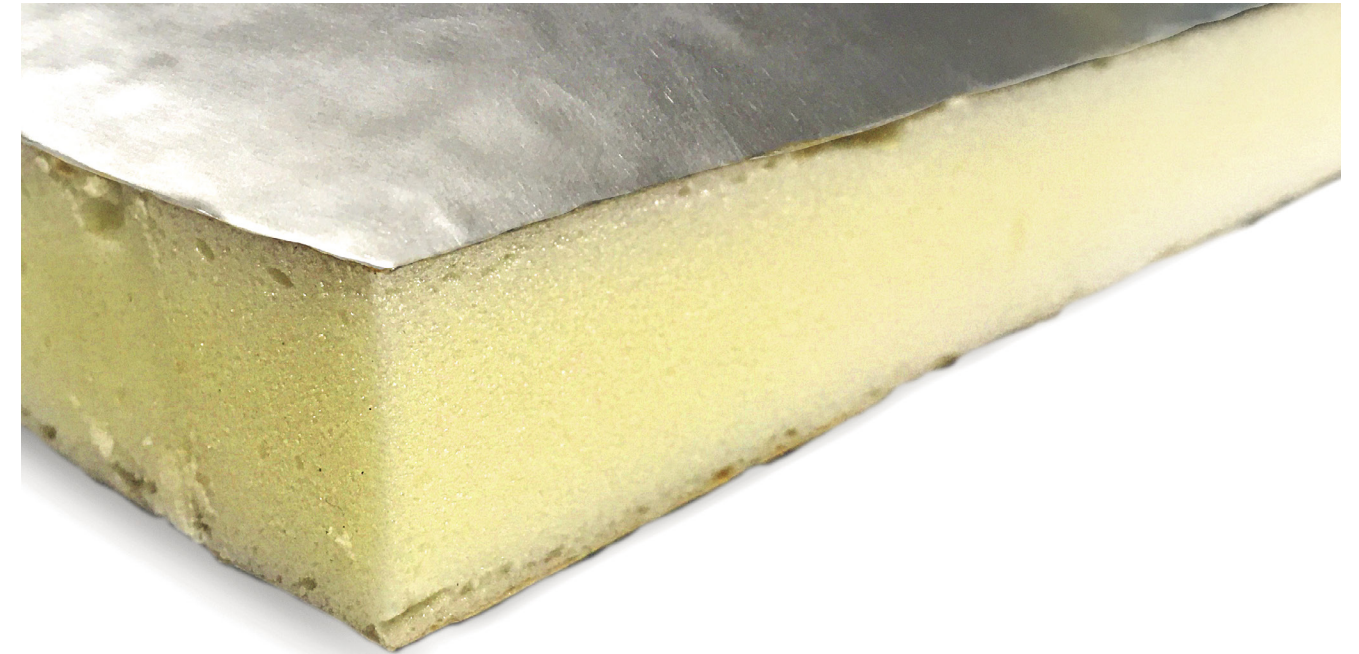
OUR LARGE PURCHASING POWER ALLOWS OUR CUSTOMERS TO GET THE BEST PRICES FOR THEIR DISCONNECTS, ACCESSORIES ETC. RECIEVE YOUR FULLY ASSEMBLED ENCLOSURE AT AN UNBEATABLE PRICE.

BOXCAD®

QUESTIONS
& ANSWERS

In this section, we provide answers to frequently asked

WE EXTEND ALL EFFORTS POSSIBLE TO PROVIDE THE BEST EXPERIENCE FOR BOXCAD USERS.

WE ENCOURAGE FEEDBACK ON LIKES, DISLIKES, NEW CUTOUT PATTERNS, NEW ACCESSORIES E.T.C.

Why should I use BOXCAD when I already have a CAD software?

- BOXCAD makes it easy to design your enclosure and then upload it to your CAD software.
- In fact,BOXCAD is a complement to your CAD system. Using the provided .stp file, your BOXCAD configuration can be transferred to your CAD system in a matter of seconds.

How long could it take to design an enclosure without BOXCAD?

- Using BOXCAD, following the exercise on page 70, it may take between 10 and 15 minutes to complete. Without BOXCAD, the same exercise could take hours!

Will my BOXCAD enclosure follow CSA & UL requirements?

- When designing a BOXCAD enclosure, all CSA and UL parameters are taken into consideration by the system. Your BOXCAD enclosure will meet all CSA and UL requirements for the enclosure's design.

How does the revision process work in BOXCAD?

- BOXCAD stores the latest version of your configuration. BOXCAD can be used as a vault to store your enclosure drawings.

Why are certain accessories highlighted in red?

- BOXCAD makes a validation of the interference of the actual accessory's position and physical dimensions in order to avoid any interfering.

Can I opt for a 3-point-lock system on my ¼ turn lock enclosure?

- It is only possible to add a 3-point-lock system on enclosures with a minimum height of 20 inches (500mm).

Will my enclosure accessories be installed by EXM?

- Accessories are not installed by EXM unless indicated otherwise.

Can I delete cutouts in the Drag & drop by entering "0" in the value menu?

- To delete cutouts in the Drag & Drop interface, use the BOXCAD's "delete" tool or "delete" key on your keyboard.

BOXCAD does not run well on my WEB browser.

- Empty your web browser's cache folder. Cookies in your browser may affect the proper execution of BOXCAD.
- Also be sure to update your Web browser (page 5).

Is it possible to modify the dimensions of the Inner Panel?

- It is possible to do a separate BOXCAD configuration for an inner panel with special dimensions.
- By default, BOXCAD offers a full size inner panel designed for the selected enclosure.

Are the threaded studs free of paint?

- The threaded studs will be masked before the painting process ensuring that you will receive threaded studs free of paint.

I have not received my BOXCAD configuration.

- Check your email Spam folder, it may be that the BOXCAD email address is not recognized by your email provider or firewall so be sure to add it to your contact list.

Are the accessories installed on an insulated enclosure?

- On enclosures with insulation, most accessories will be installed, since they require modifications to the insulation layer.
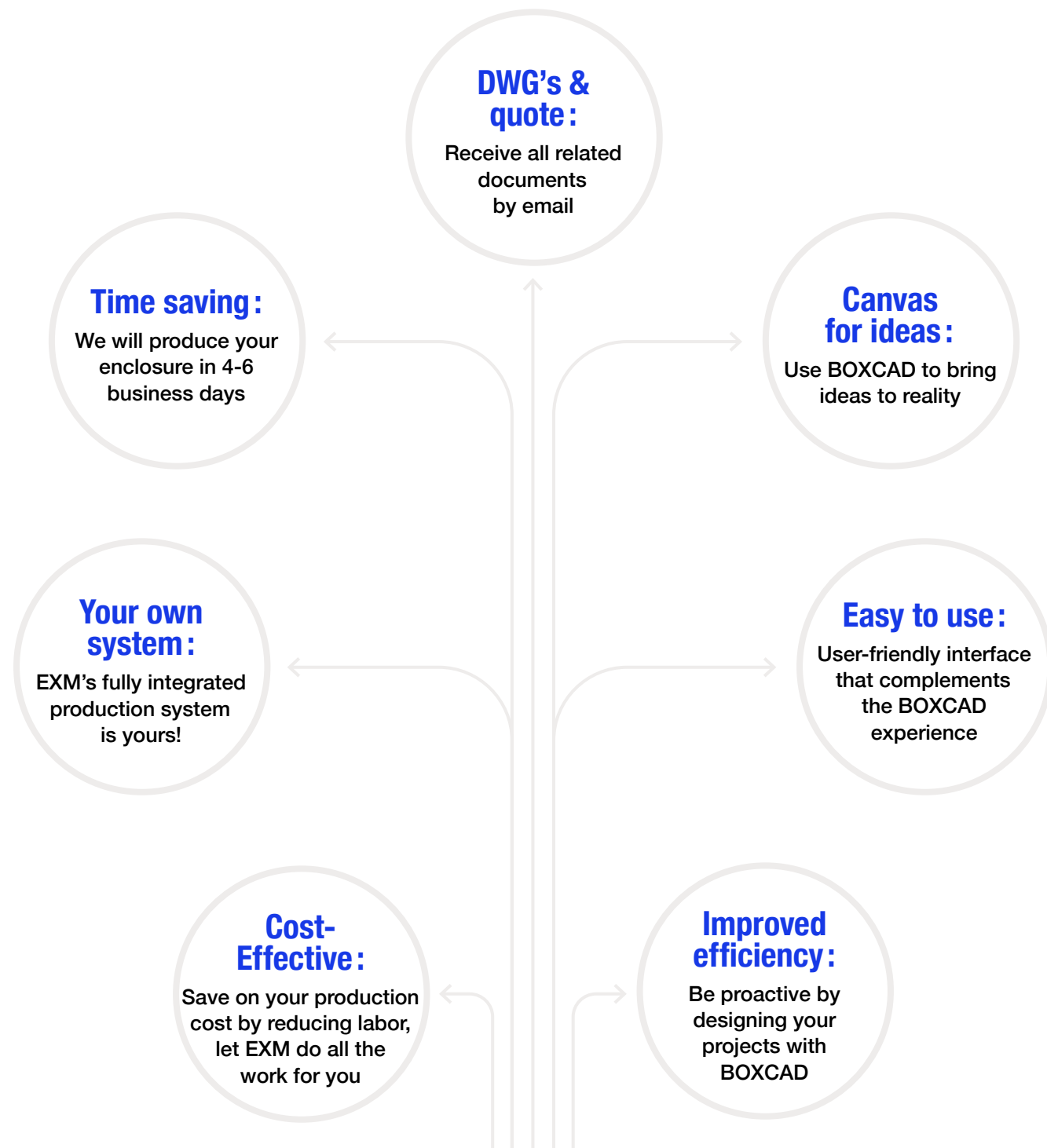
BOXCAD®

FINAL WORD

BOXCAD is the ideal solution for custom-made enclosures.

WITH MORE AND MORE USERS JOINING EACH DAY, BOXCAD SEVES A GENUINE INTEREST FROM CLIENTS RANGING FROM SMALL ENTERPRISES TO MULTINATIONALS.

DWG's & quote:

Receive all related documents by email

Time saving:

We will produce your enclosure in 4-6 business days

Canvas for ideas:

Use BOXCAD to bring ideas to reality

Your own system:

EXM's fully integrated production system is yours!

Easy to use:

User-friendly interface that complements the BOXCAD experience

Cost-Effective:

Save on your production cost by reducing labor, let EXM do all the work for you

Improved efficiency:

Be proactive by designing your projects with BOXCAD

BOXCAD®

EXM MANUFACTURING LTD.

Since 1975, EXM has specialized in manufacturing standard & custom enclosures.

Contact:

Tel: 1 (800) 363.2423 | **Fax:** (800) 594.9595 | **Email:** sales@emxweb.com

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