

더빌더스 산업용 엔클로저 기술자료

# 산업용, 프레임·전용접 외함

**Industrial Framed & Welded Enclosure**

# 국제인증 외함 - 공종별 설계, 생산, 공급

IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED





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IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED



# 국제인증 외함 - "프레임 외함" 악세사리 공급

IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED



LEDAK light



A3 drawing frame



896-A3 Flat Lock



896-A2 Flat Lock



MS891-A1



Stainless Steel Button Lock



LED control lights



XL927 Little Sparrow



MS891-A3



Two-way plane lock



# 국제인증 외함 - "프레임 외함" 악세사리 공급

IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED



Streamlined Push Button Lock



T24 Deluxe Streamlined Push ...



Outdoor big lock 2



Outdoor big lock 1



Network back door lock



Stainless steel handle lock



867 button lock



AK928 Woodpecker Lock



A lot of outdoor locks



A4 drawing frame

더빌더스 산업용 엔클로저 기술자료  
**프레임 외함 국제인증서 패키지**  
**3rd part Approval Certifications**



# 국제인증 외함 - 인증서 패키지

IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED



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### Certificate

No. ICR Polska/a1-118/2018



Name and address of certificate owner:

WON HOUNG TECH  
61, Cheongwonsandan 4-gil, Mado-myeon, Hwaseong-si,  
Gyeonggi-do, Korea

Name and address of manufacturer:

WON HOUNG TECH  
61, Cheongwonsandan 4-gil, Mado-myeon, Hwaseong-si,  
Gyeonggi-do, Korea

Product name:

Industrial Control Panel System

Product type:

WH-ICP-# Series, WH-ICOP-# Series, WH-IDCP-# Series  
# can be H or K (# means Locking type)  
H: Handle type, K: Key type

This certificate confirms that the product meet the requirements of the following standards and within limits of its standards give presumption of conformity with essential requirements of Directive: LVD 2014/35/EU

EN 60529:1991+A2:2013 IP55

The certification process has been carried out in accordance with the program PC-P-07-07.  
Evaluation has been carried out in accordance with test report made by CTK Co., Ltd. laboratory

No. of test report:

CTK-2018-01999; CTK-2018-02000; CTK-2018-02001

Issue date:

25.07.2018

Expiration date:

indefinitely

The mutual obligations and rights of the certification are regulated by the contract no.:

ICR Polska / 112 / 2018 of 09.04.2018

This certificate applies to products having the same attributes (parameters), intended use, that have been evaluated and meet the requirements of the aforementioned standards.

Director: Rafał Kalinowski  
Warsaw, 25. 07. 2018



ICR Polska Sp. z o.o.  
ul. Plac Przymierza 6, 03-944 Warszawa  
www.icrpolska.com, e-mail: icrpolska@icrqg.com



### CHINA QUALITY CERTIFICATION CENTRE CERTIFICATE OF CONFORMITY

Certificate No.: CE210301007299

Product

Distribution Box

Applicant

Shanghai Electrical Equipments INC.  
No. 6 Hainan Industrial Zone, Shanghai District, Shanghai

Type/Model

XM

Technical data

Ue: AC380V; Ui: 400V; InA(Main Busbar): 250A; Icw(Main Busbar): 6kA/1s; Ipk(Main Busbar): 10.2kA; IP40-accessible surfaces IP20C; 50Hz; Indoor

This is to certify that, on the basis of the tests undertaken as per Report No. DY211921, the submitted sample(s) of the above item complies with:

EN 61439-3:2012

and fulfills testing requirements of the European Directive:  
2014/35/EU

This report is to verify the compliance of the sample submitted by the manufacturer only, and does not include the manufacturing process. Users shall affix the mark in accordance with the related legislation.

Valid from: Jul.15, 2021

Valid until: Jul.15, 2024

The certificate information is available through the QR code below or CNCA's website: www.cnca.gov.cn



CHINA QUALITY CERTIFICATION CENTRE

SIGNATURE:

谢肇熙



http://www.cqc.com.cn

Section 9, No.186, Nanshan Xilu, Beijing 100070 P.R.China

Tel: +86 10 83886666



### CERTIFICATE

#### ATTESTATION CERTIFICATE OF MACHINERY DIRECTIVE

Technical file of the company mentioned below has been observed  
2006/42/EC Machinery Directive has been taken as references for these processes

Company Name: Shanghai Zhang Jinghe Electronic Equipment Co., Ltd.

Company Address: No. 1000, Street of Jingcheng Road, Shanghai District, Shanghai, China

Related Directives and Annex: Machinery Directive 2006/42/EC

Related Standards: EN ISO 12100:2010

Product Name: Control Cabinet

Report No and Date: TCF-AC21110506MD

Product Brand/Model/Type: TIR, T20, T24, KI, AE, AK, AF

Certificate Number: M.2021.206.C68881  
Initial Assessment Date: 09.11.2021  
Registration Date: 10.11.2021  
Release Date/No: -  
Expiry Date: 09.11.2026

UDEM International Certification  
Auditing Training Centre Industry  
and Trade Inc. Co.

The validity of the certificate can be checked through www.udemcert.com. The CE mark shown on the right can only be used under the responsibility of the manufacturer with the completion of EC Declaration of Conformity for all the relevant Directives. The certificate remains the property of UDEM International Certification. Auditing Training Centre Industry and Trade Inc. Co. to whom it must be returned upon request. The above named line must keep a copy of this certificate for 10 years from the registration of certificate. The certificate only covers the products stated above and UDEM must be notified in case of any changes on the product. Address: Mithatlar Mahallesi 2073 Sokak (Eski 93 Sokak) No:10 Çankaya - Ankara - TURKEY  
Phone: +90 312 443 80 90 Fax: +90 312 443 80 78  
E-mail: info@udemcert.com.tr www.udemcert.com.tr







# 국제인증 외함 - 인증서 패키지

## IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED



### TEST REPORT

No. : .N19040: MF  
Date : Apr 29, 2019  
Page: 3 of 6

1: Test Item: IP6X  
Sample Description: Metal box  
Test Method: IEC 60529:2013 COR 2:2015  
Test Condition:  
Test Dust: Talcum powder  
Dust Concentration: 2 kg/m<sup>3</sup> chamber volume and be kept in suspension during the test  
Test Duration: 8 hours  
Lab Environment Condition: 15°C~35°C, 25%RH~75%RH

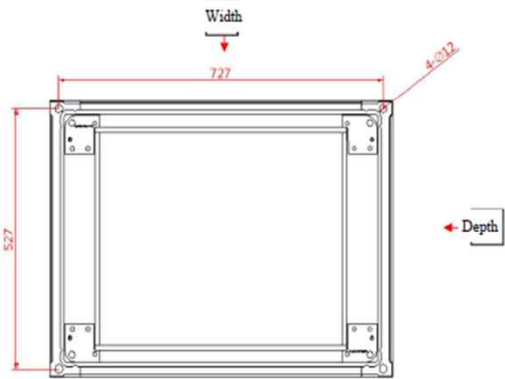
Sample No.	Test result
1	After test no dust ingress sample

Test Photo:



China Telecommunication Technology Labs.  
Report No.: K17X87967

Page 4 of 12



Picture 2-2

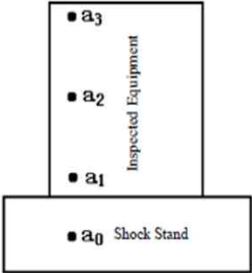
China Telecommunication Technology Labs.  
Report No.: K17X87967

Page 5 of 12

### III. Structural Property Test

#### 1 Schematic Drawing for the Layout of Acceleration Sensor

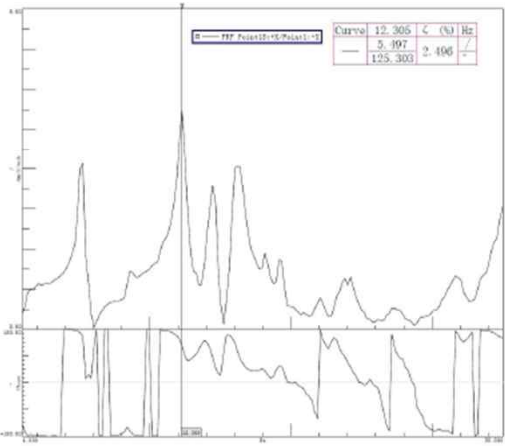
The acceleration sensors are respectively arranged on the shock stand and the main frame of the equipment, and the monitoring point arrangement is shown in Picture 3.



Picture 3

#### 2 Dynamic Characteristic Curve of the Inspected Equipment

2.1 Dynamic Characteristic Diagram of the Inspected Equipment before the Intensity-8 Horizontal X-Direction Shock (refer to the following picture)



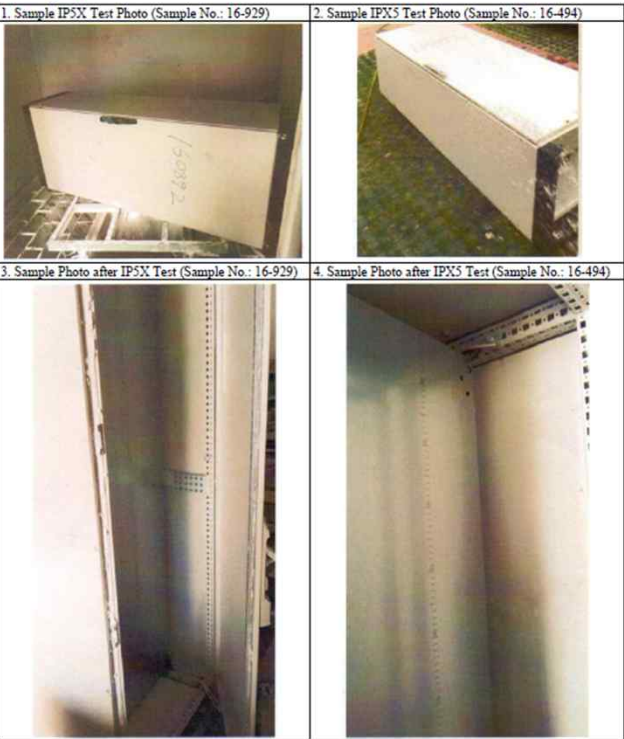
Picture 4

# 국제인증 외함 – 인증서 패키지

## IP55~66, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE TESTED

Report No.: MCDL-2016-313-F Page 3 of 4

### II. Sample Pictures



### III. List of Test Instruments and Equipment

Serial No.	Name	Type	Equipment No.	Expiry Date of Calibration	Current Use (X)
1	Sand and Dust Test Chamber	SC-020	MCDL-04-30-A	Sep. 1 <sup>st</sup> , 2017	X
2	Spray Preventer	DMS-E03B	MCDL-04-36-A	Oct. 31 <sup>st</sup> , 2016	X

MCDL-300B-02

ST1-STCB-M-052-2017

Beat Wave Test Report of Sever Cabinet

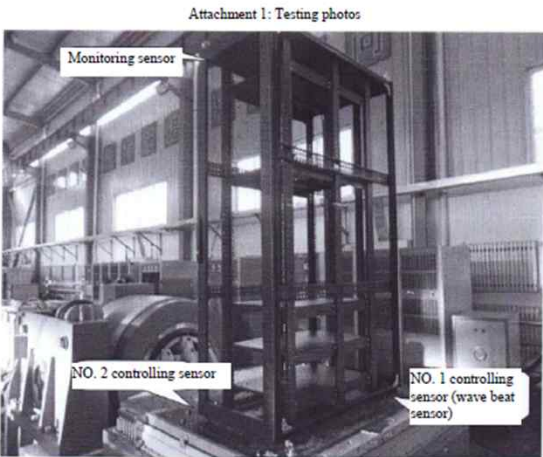


Photo 1: Testing photos of Axis X direction

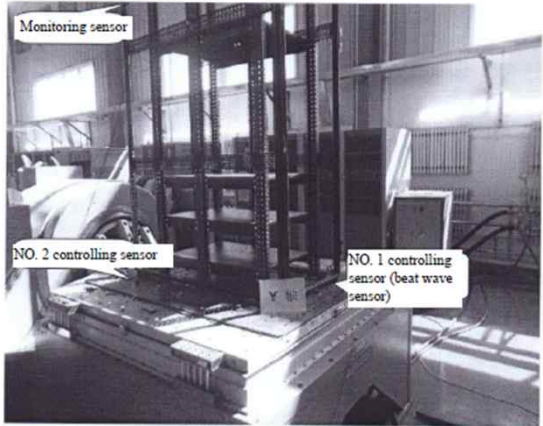


Photo 2: Testing photo of Axis Y direction

ST1-STCB-M-052-2017

Beat Wave Test Report of Sever Cabinet

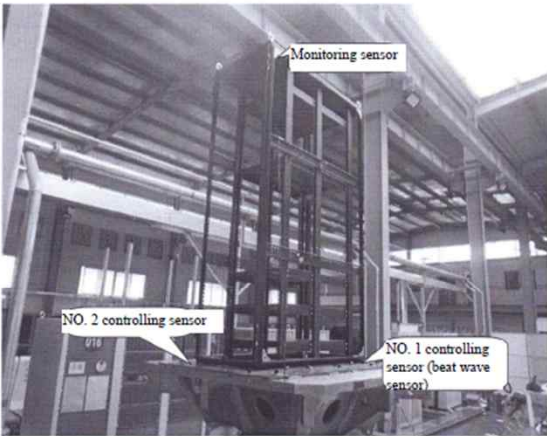


Photo 3: Testing photo of Axis Z direction

더빌더스 산업용 엔클로저 기술자료  
**프레임외함 국산화 생산공장(한국)**  
**Global Smart Factory System**



# 산업용 외함 (시스템 케비닛), 규격품+비규격품 케비닛 국산생산 Industrial Enclosure (Profiled Frame)& Baying Panel Local Manufacturing

## A better manufacturer, Made in Korea Wide range of Enclosure system for various industries.

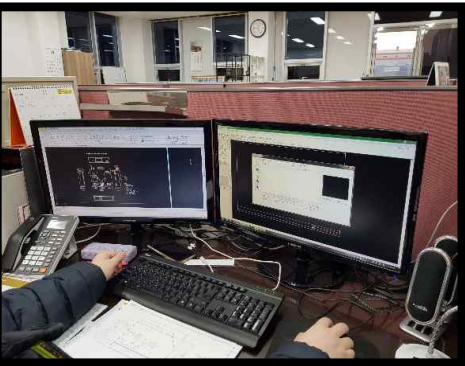
1. 국산화 주문형 프레임 외함 (엔클로저) 생산
2. 레이저 판금 국산 생산 – Laser sheeting & Manufacturing
3. 철의장 주문 국산 생산 - Taylor-made Steel Manufacturing
4. 가스켓 포밍 국산 생산 – Gasket Foaming & Manufacturing
5. 프레임 외함 국산 생산 – Framed Enclosure Manufacturing
6. 전용접 외함 국산 생산 – Welded Enclosure Manufacturing
7. 주문형 외함 국산생산 – Taylor-made Enclosure Manufacturing
8. EPC, project enclosure 외함 – 설계, 제작 (규격품 & 비규격품) – “System Enclosure”
9. IP55~66등급, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE 인증 판넬 공급

Framed & welded enclosures engineered to provide superior steel performance with parts.

- High performance steel fabrication with integrated solution.
- Customer service.
- Wide range of cables with accessories.
- Worldwide logistics.
- Advanced supply chain solutions.
- Consultancy, engineering projects.

# 산업용 외함 (시스템 케비닛), 규격품+비규격품 케비닛 국산생산

## Industrial Enclosure (Profiled Frame)& Baying Panel Local Manufacturing



ORE,고객 오더접수 및 설계



NCT PUNCHING, 편칭



BENDING, 절곡



WELDING, 용접



PAINTING, 도장



POWDER COATING, 분체 분사



PRETREATMENT, 도장 전처리



STANDBY PAINTING, 도장대기



GASKETING 우레탄가스켓 포밍(선택)



QC & ASSEMBLY, 검사 및 조립



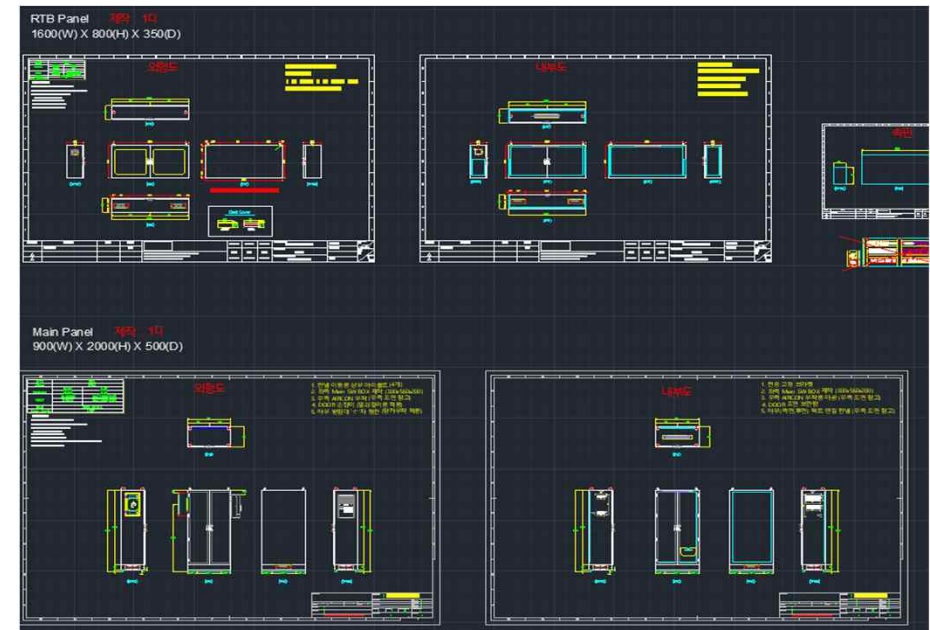
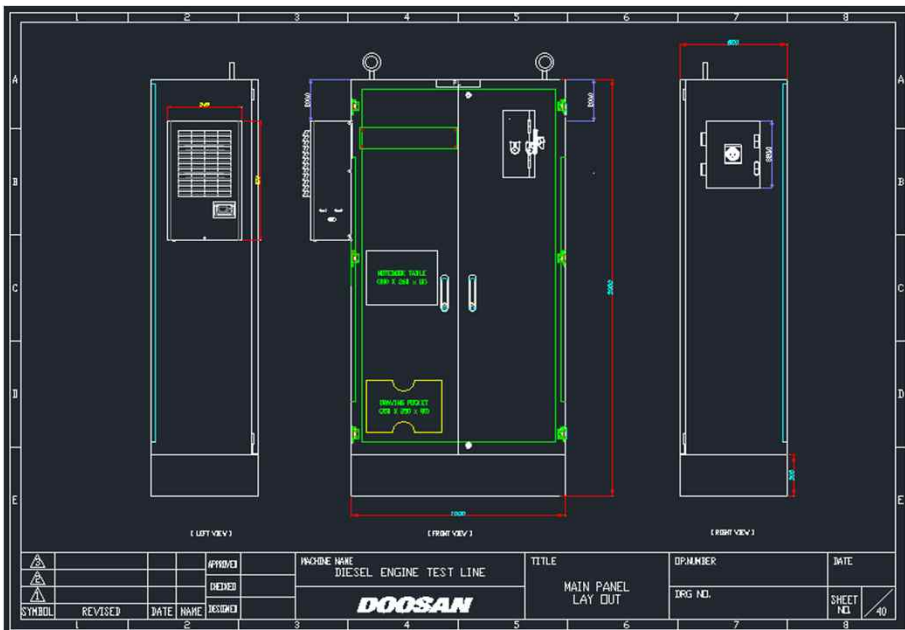
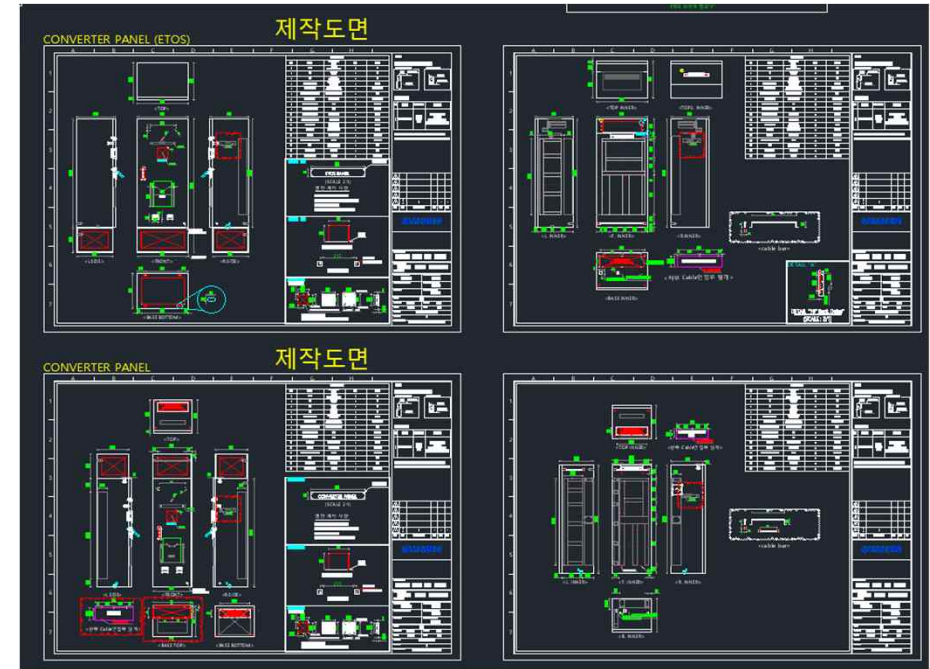
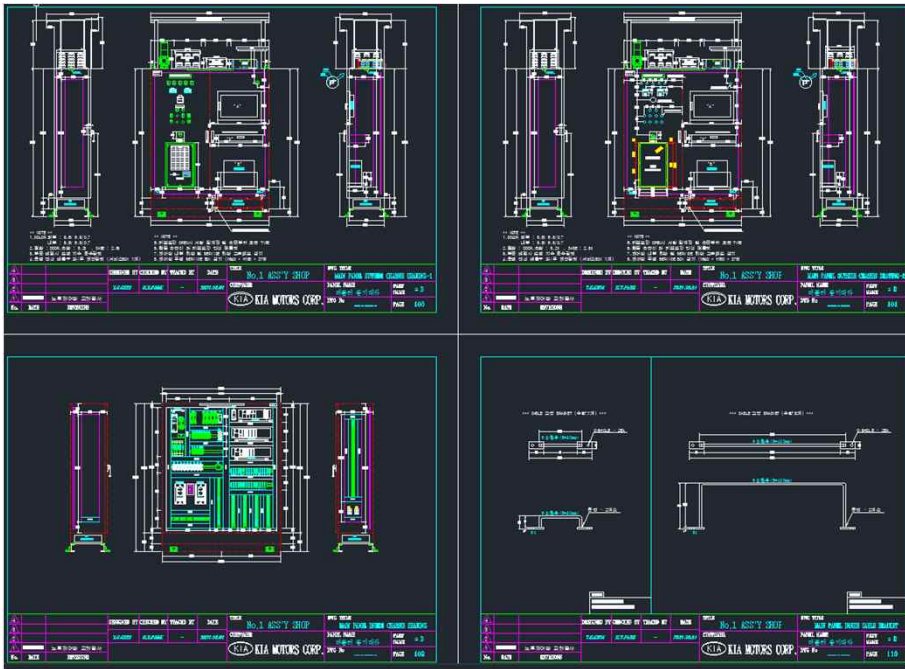
PACKING, 포장



LOAD OUT, 출하



# 산업용 외함 (시스템 케비닛), 규격품+비규격품 케비닛 국산생산 Industrial Enclosure (Profiled Frame)& Baying Panel Local Manufacturing



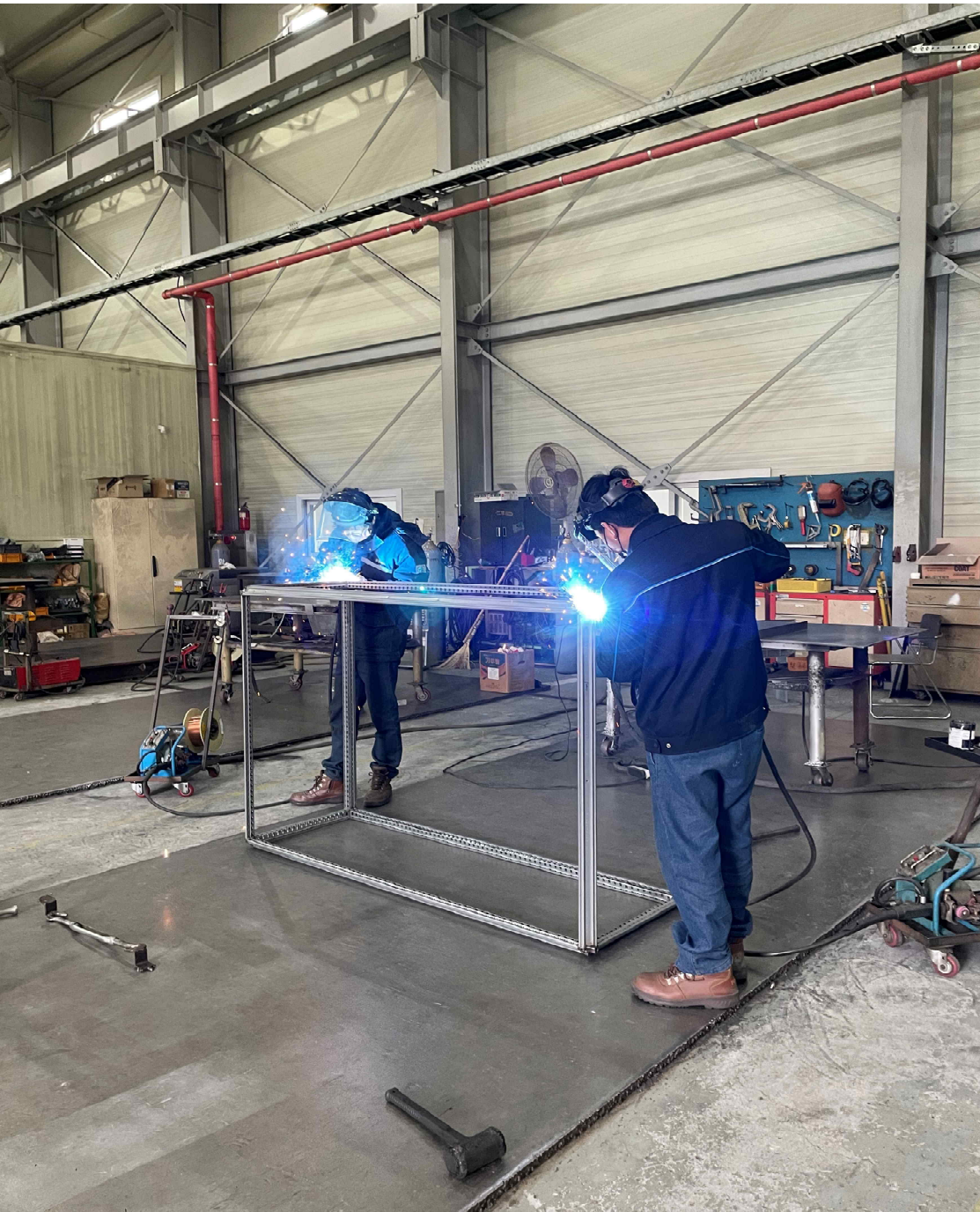


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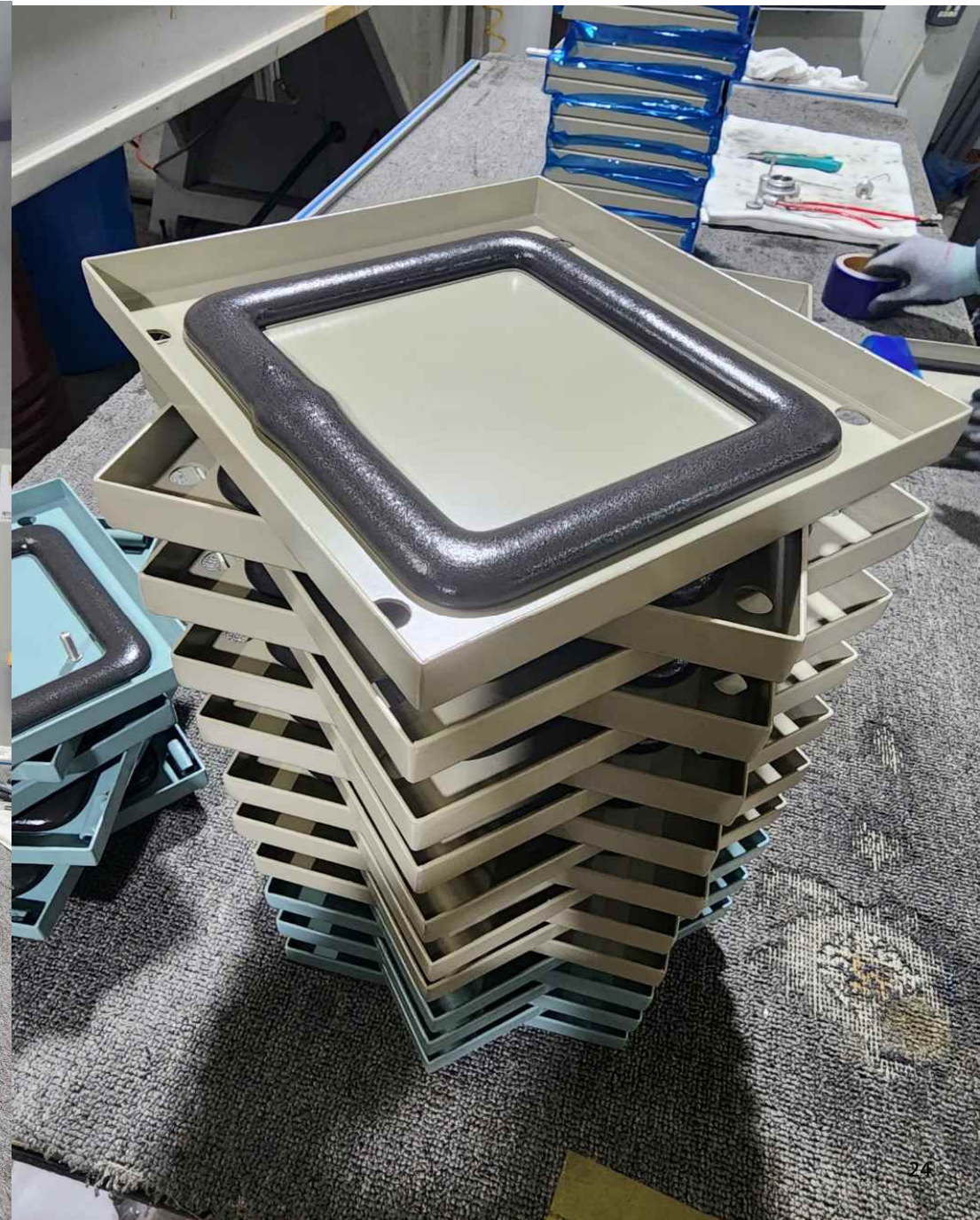


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**프로젝트명: 심팩-심원테크USA - 열반형 프레임 외함 : W6400 H2200 D800 P300**

개별 외함 두께: T2.3mm / 개별 도어 두께: T2.3mm / 일체형 베이스 두께 : T4.0mm / 도장: RAL7035 / 실링: UL인증 우레탄 포밍 (UL 인증서 포함)



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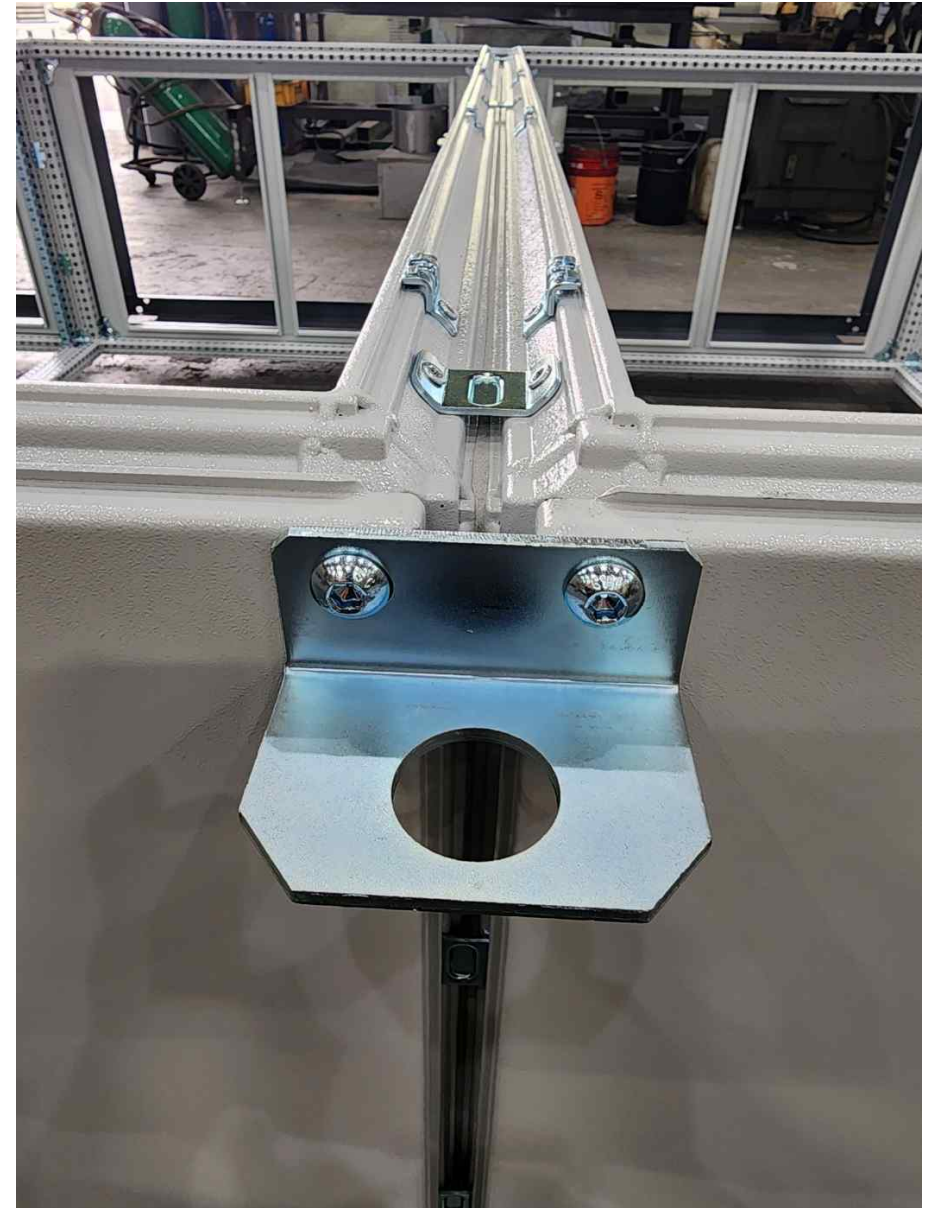
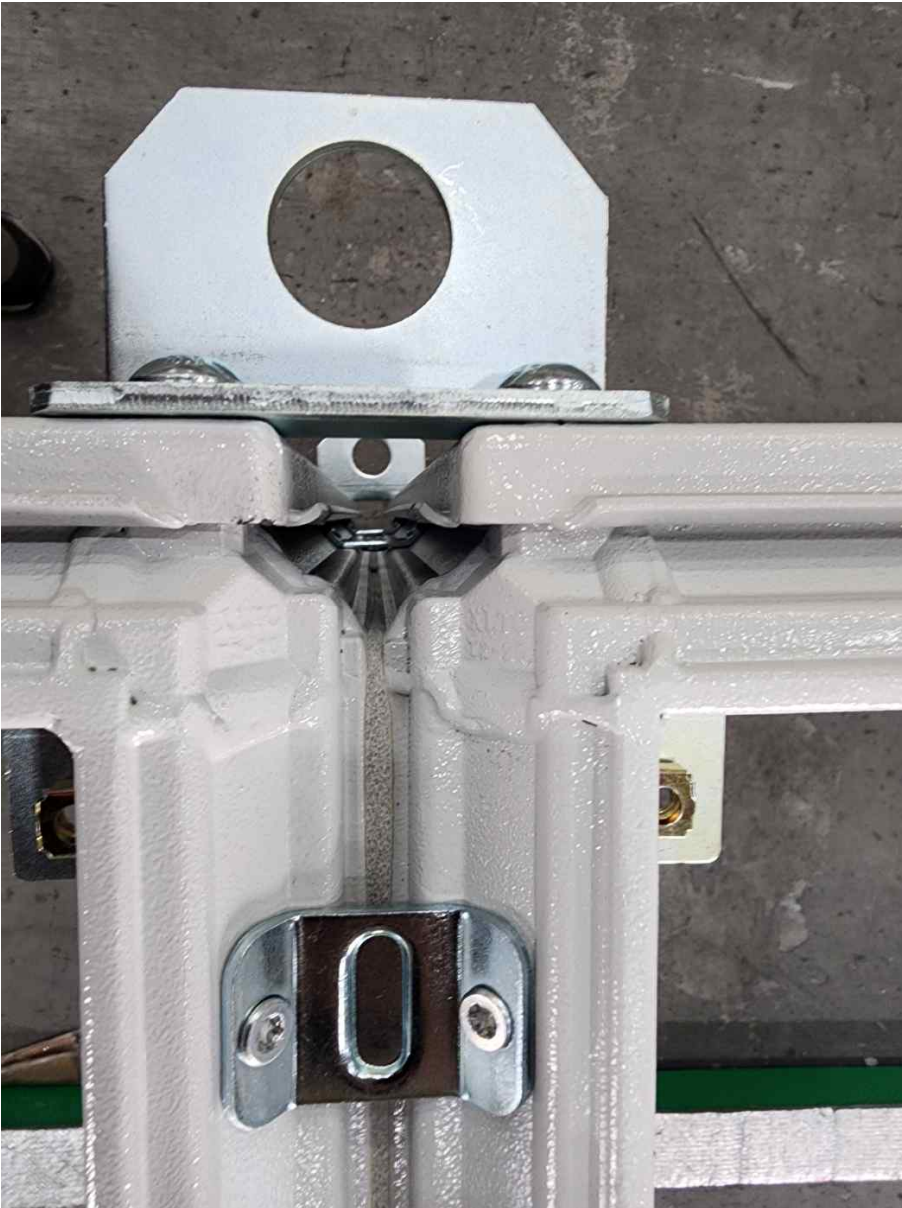
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프로젝트명: 심팩-심원테크USA - 열반형 프레임 외함 : **W6400 H2200 D800 P300**

개별 외함 두께: T2.3mm / 개별 도어 두께: T2.3mm / 일체형 베이스 두께 : T4.0mm / 도장: RAL7035 / 실링: UL인증 우레탄 포밍 (UL 인증서 포함)





# 산업용 외함 (시스템 케비닛), 규격품+비규격품 케비닛 국산생산 Industrial Enclosure (Profiled Frame)& Baying Panel Local Manufacturing

프로젝트명: 심팩 - 무빙-제어반 (MOVING-ARM-ENCLOSURE)





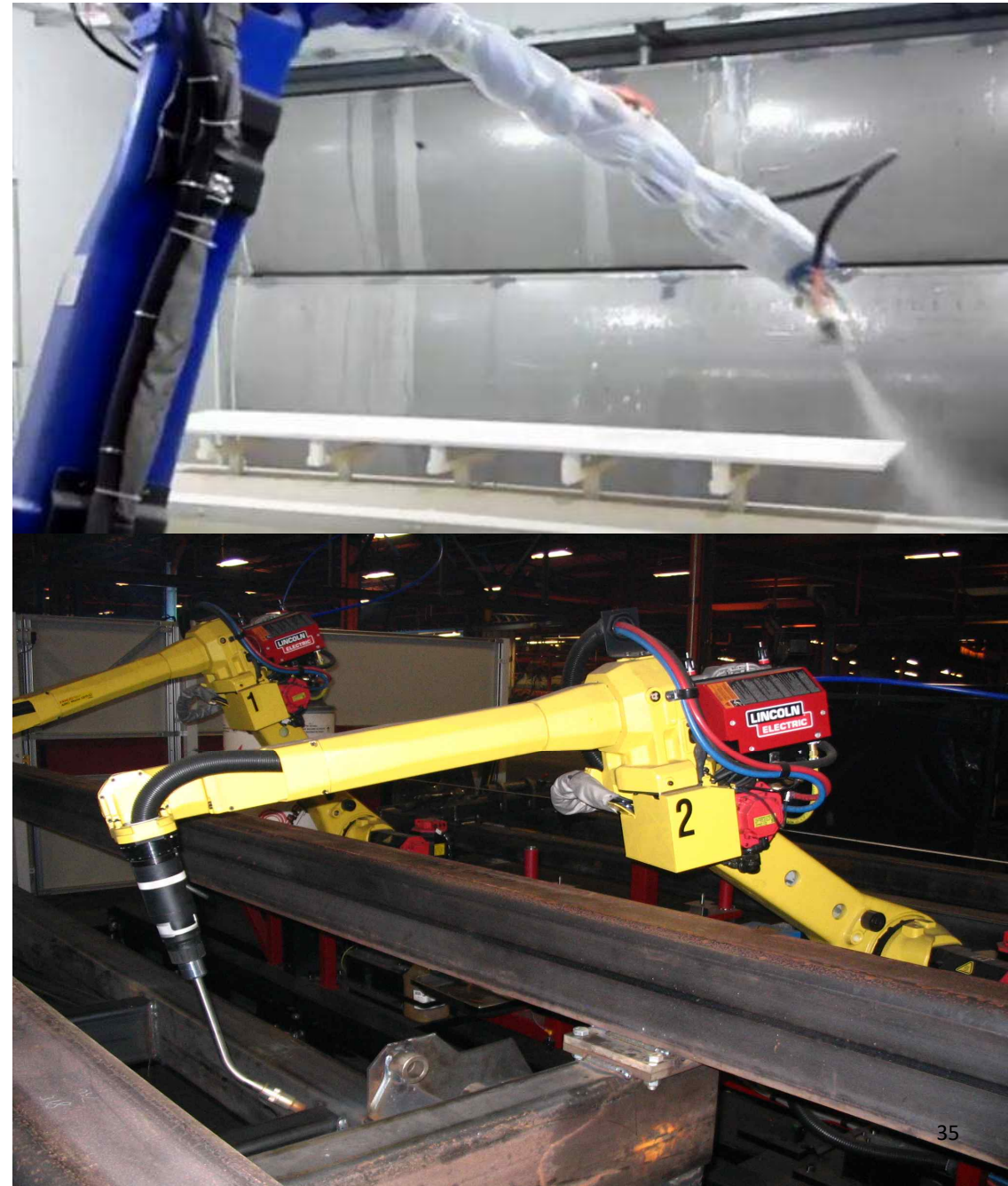
더빌더스 산업용 엔클로저 기술자료  
**프레임 외함 해외 OEM 생산공장**  
**Global OEM, ODM Factories**

# 스마트 팩토리 – 프레임외함 생산공장 (본사,중국) 개요

## Gist of Smart Factory for Enclosure & Baying Panel System

**“평균 생산량: 50,000 대 이상”**

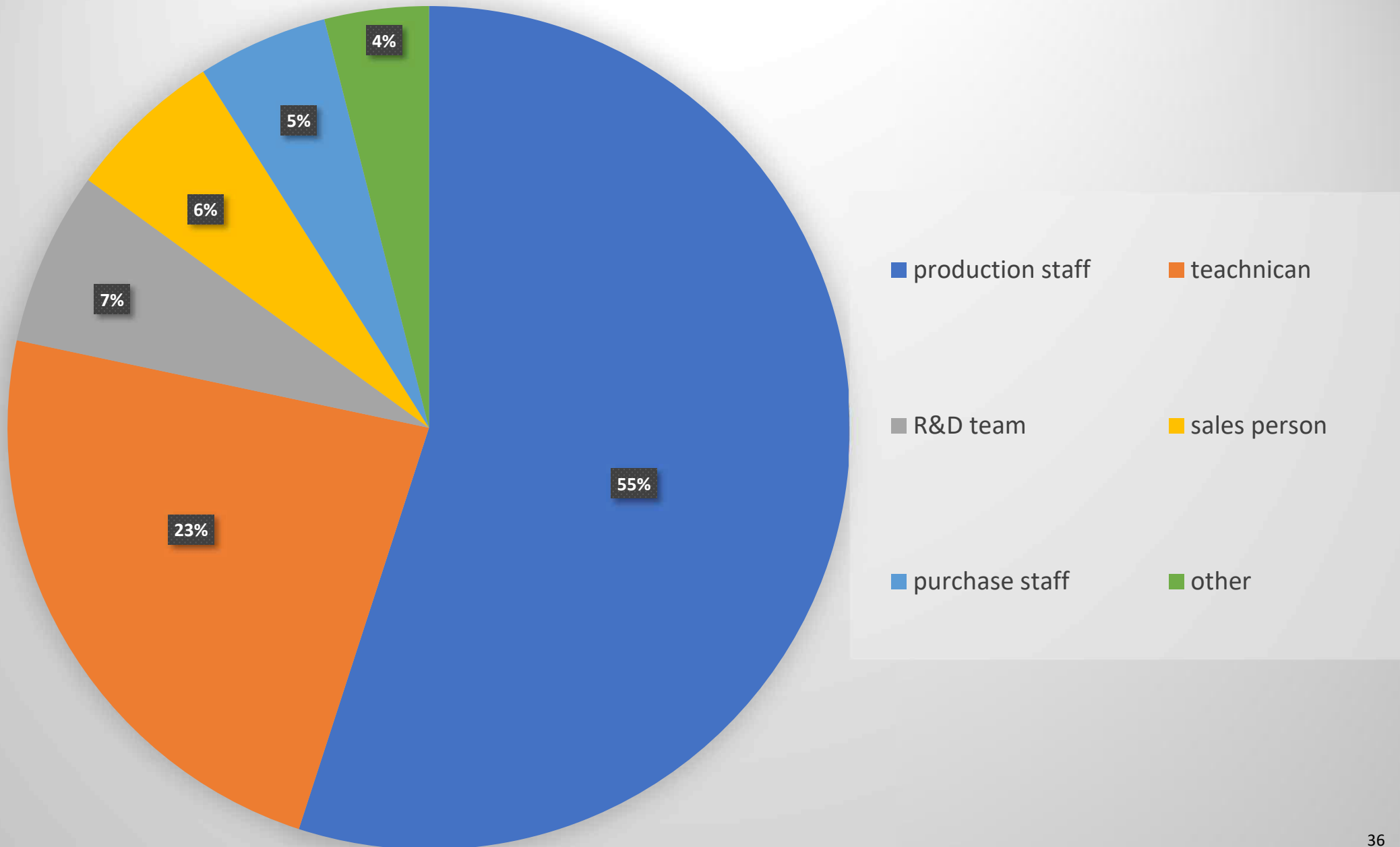
- ◆ 개별공장 면적: 42,000m<sup>2</sup> 이상 (12,700평↑)
- ◆ 개별작업장 면적: 30,000m<sup>2</sup> 이상 (9,000평↑)
- ◆ 특허, 지적재산권을 보유한 자동화 생산라인
- ◆ 고속기계화 생산 및 스마트 팩토리 시스템
- ◆ 100% 전자동 로봇 용접
- ◆ 100% 전자동 로봇 도장
- ◆ 100% 자체 도장공장 보유
- ◆ 프레임 외함 조립용 특수 지그 보유
- ◆ 외함 주요 사용국가 (고정거래처- 국가별):  
중국, 한국, 일본, 베트남, 인도, 인도네시아,  
말레이시아, 이란, 파키스탄, UAE, 벨로루시,  
유럽





# 스마트 팩토리 – 프레임외함 생산공장(본사,중국) 전문 인원, 숙련공 구성비

## Man-Power RATIOS



# 스마트 팩토리 - 프레임외함 생산공장(북경, 천진)

## Gist of Smart Factory for Enclosure & Baying Panel System



\* 중국 북경 공장 - BEIJING FACTORY S.S



\* 중국 천진 공장 - TIANJIN FACTORY C.S



# 스마트 팩토리 - 프레임외함 생산공장(와령)

## Gist of Smart Factory for Enclosure & Baying Panel System



\* 중국 와령 1공장 - WARING FACTORY-1



\* 중국 와령 2공장 - WARING FACTORY-2



# 스마트 팩토리 – 에어컨, 판금 생산공장(북경, 천진)

## Gist of Smart Factory for Enclosure & Baying Panel System



\* 중국 산업용 에어컨 공장 – COOLING CONTROL FACTORY



\* 중국 판금 제작 공장 - SHEET METAL FACTORY



# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 자동화 공정 - Auto Decoiling Line



# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 자동화공정 – PROFILING (18-BENDING LINE)





# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 자동화공정 - AMADA CNC punching & CNC Laser Jet Machine





# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

**자동화공정 - AMADA CNC punching & CNC Laser Jet Machine**





# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 자동화공정 - ZINC-Plate Facility





# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 자동화공정 - Auto Painting line





# 고강도, 경량, CS 열반 외함(자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## Factory's Laboratory



# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 설비 목록 1/3 – Facility's List & log

<u>Description</u>	<u>Type</u>	<u>Qty</u>	<u>Specification</u>
Lathe		1	Max rpm: 360mm
Lathe	CD6140A	1	Working length: 1500mm
Lathe		1	Max. cutting dia.: 400mm
Cutting Saw	SHARK	1	Max. cutting width: 280mm
CNC Milling Machine	XK8140	1	X: 800mm Y: 400mm
Milling Machine	X8130	1	X: 750mm Y: 300mm
Fiber Drawing Machine	SG1300-DSIB	1	Max working width: 1300mm
Fiber Drawing Machine	SG1300	1	
Welding Robot	Arc Mate 100ib	1	
TIG Machine	TIG200S	3	Max. welding THK: 0.5-3mm
TIG Machine	TIG250D/TIG40	2	



# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 설비 목록 2/3 – Facility's List & log

<u>Description</u>	<u>Type</u>	<u>Qty</u>	<u>Specification</u>
CNC Laser Cut	1530	1	X: 3000mm Y: 1500mm; Max. cutting THK: CRS 0.5~1.8mm; SS 0.5~8mm; AL 0.5~5mm
CNC Punch Machine	2510C	1	X: 50 inch; Y: 100 inch
CNC Punch Machine	255NT	2	X: 50 inch; Y: 100 inch
CNC Punch Machine	31228C	1	X: 1200mm; Y: 2800mm
CNC Punch Machine	3058	1	X: 2500mm; Y: 1500mm
CNC Shearing Machine	QC12Y-6X3200	1	Width: 3200mm; THK: 6mm
Shearing Machine	QC12Y-6X2500	1	Width: 2500mm; THK: 6mm
Sheet Flattening Machine	W43-3X1250	1	Width: 1250mm; THK: 0.8-3mm
Punch Press	J21S-80	1	Max. Pressure: 80tons; Max. cutting THK: 9mm
Punch Press	J21S-40	1	Max. Pressure: 40tons
Punch Press	J21S-25	1	Max. Pressure: 25tons
Punch Press	J21S-25	1	Max. Pressure: 25tons

# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## 설비 목록 3/3 – Facility's List & log

<u>Description</u>	<u>Type</u>	<u>Qty</u>	<u>Specification</u>
CNC Bending Machine	RG100X3200	3	Max. pressure: 100 tons, Max. working width: 3200mm
CNC Bending Machine	RG35X1200	1	Max. pressure: 35 tons, Max. working width: 1200mm
Bending Machine	RG160X3200	1	Max. pressure: 160 tons, Max. working width: 3200mm
Bending Machine	RG63X2500	1	Max. pressure: 63 tons, Max. working width: 2500mm
Bending Machine	RG250X2500	1	Max. pressure: 250 tons, Max. working width: 3200mm
Spot Welding Machine	YR-350B2HGE	1	Max. THK: 1.0-3.0mm
Spot Welding Machine	DNB-63B	1	X: 1500mm Y: 600mm, Max. THK: 1.0~3.0mm
Stud Welding Machine	LZH-2602	1	Max. stud: M8X260mm ; Min. stud: M3×4mm
Stud Welding Machine	PRESSOTECHMK	1	Max. pressure: 40MPa
Drilling Machine	ZN 3732X8	1	Max. dilling dia.:32mm; Max. working space: 800mm
CNC Milling-drilling Machine	ZJK7532-A-4	1	X: 540mm Y:350mm Z: 450mm
Lathe	CA6136	1	Working length: 650mm



# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## Production pictures of FRA (Frame Work Agreement) Customer



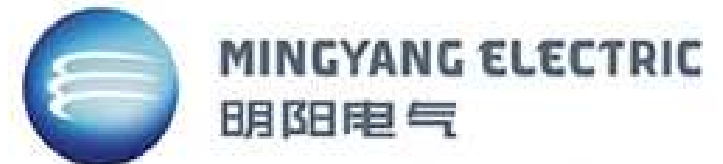
# 고강도, 경량, CS 열반 외함 (자동화생산) – TC9000

IP55-66 고강도 방진,방오,부식방지 캐비닛 – High Strength, Anti-Corrosion

## CRM (주요고객) – Frame Work Agreement Customer List



[www.siemens.com/](http://www.siemens.com/)

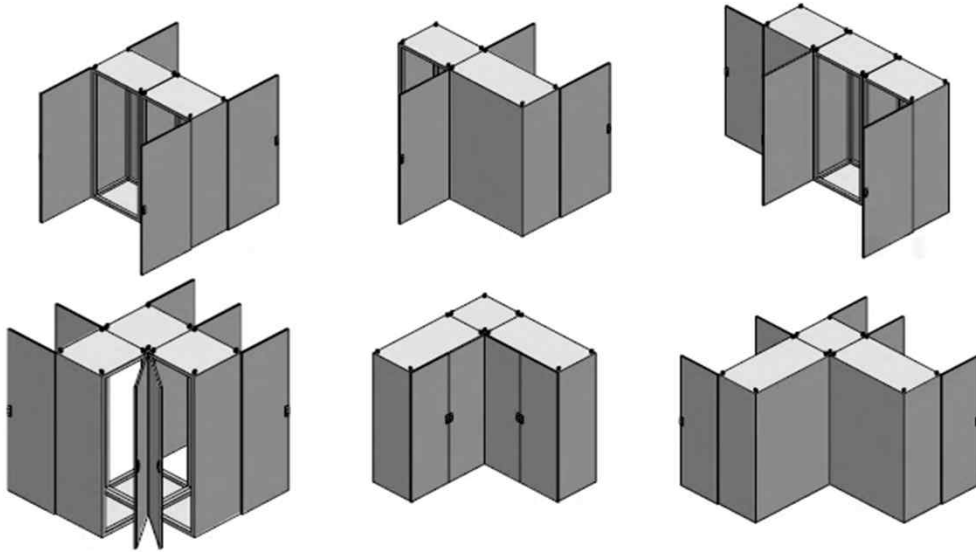




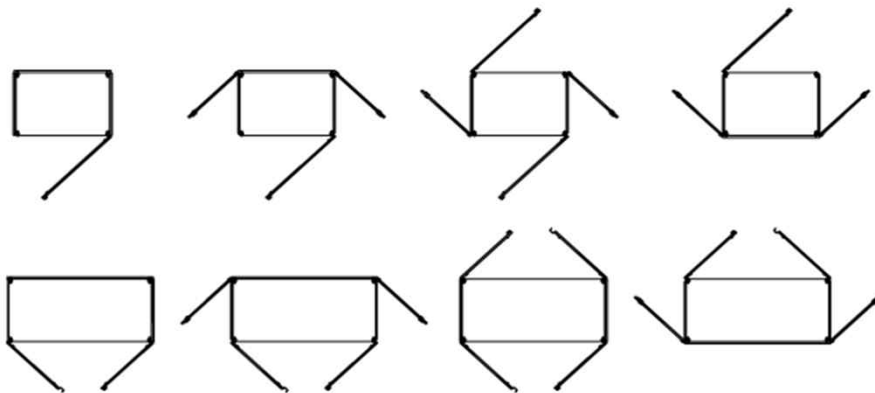
더빌더스 산업용 엔클로저 기술자료  
**프레임 외함 제품 (Catalog Data)**  
**Product Line-up information**

# 고강도, 경량, CS 열반용 프레임 외함 (특허제품)

## Profiled Frame Enclosure - Catalog Data



DOORS AND SIDE PANELS ARE OPTIONAL FOR ALL DIRECTIONS. COMPATIBLE WITH THE ABOVE BAYING SOLUTIONS



Whether around corners, forwards, backwards, to the left or right or even upwards if required, the baying possibilities are unlimited. Doors can be opened clock-wise or counter-clock-wise as request.



**발주처 지정 Vendor(폐사)제품 사용, 설치 & 운용사진**



# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



### TC9000

TC-9000 SERIES PROFILE  
T20 Control cabinets

#### Material:

-T20 Enclosure frame: Zinc-plated 2.0mm  
Roof, side panel, rear panel, bottom panel: sheet steel 1.5mm  
-Door: Sheet steel 2.0mm  
-Mounting plate: Zinc-plated 2.5mm

#### Colour:

-RAL 7035

#### Protection category:

-IP55 to IEC 60529, complies with NEMA 12.

#### Surface finish:

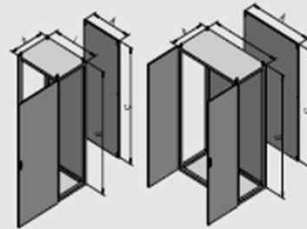
-T20 Enclosure frame: Dipcoat-primed, powder-coated on the outside, flat  
-Door, roof, side panel, rear panel: Dipcoat-primed, powder-coated on the outside, textured paint  
-Mounting plate and bottom plates: Zinc-plated

#### Supply includes:

-T20 Enclosure frame with door(s), 3mm double-bit lock insert  
-Mounting plate  
-Bottom plate  
-Rear plate  
-Roof, 4 eye-bolts

#### Approvals:

-CE  
-RoHS  
-IP protection  
-Bearing  
-Salt spray  
-High and low temperature  
-Glow wire  
-Anti-seismic 8 grade



Height: 2000mm, depth: 600mm-800mm

Standard						
Width(B1)mm	600	800	800	1000	1200	page
Height(H1)mm	2000	2000	2000	2000	2000	
Depth (T1) mm	600	600	800	600	800	
Mounting plate width(F1)mm	499	699	699	899	1099	
Mounting plate height(G1)mm	1896	1896	1896	1896	1896	
Model TC	T20-2066	T20-2086	T20-2088	T20-20106	T20-20128	
Door(s)	1	1	1	2	2	
Weight(kg)	144	150	158	198	214	

#### Available on request

Side panel	T900300019	T900300019	T900300025	T900300019	T900300025	49
Plinth(Height 100mm)	T900700002	T900700005	T900700006	T900700008	T900700012	45
Plinth(Height 200mm)	T900700026	T900700029	T900700030	T900700032	T900700036	45

#### Lock System

Standard supply is MS896, MS867 is available on request

Note: Color: Textured RAL7035, RAL7032 is available on request. Lead time is available on request



### TC9000

TC-9000 SERIES PROFILE  
T24 Control cabinets

#### Material:

-T24 Enclosure frame: Zinc-plated 2.5mm  
Roof, side panel, rear panel, bottom panel: sheet steel 2.0mm  
-Door: Sheet steel 2.5mm  
-Mounting plate: Zinc-plated 3.0mm

#### Colour:

-RAL 7035

#### Protection category:

-IP55 to IEC 60529, complies with NEMA 12.

#### Surface finish:

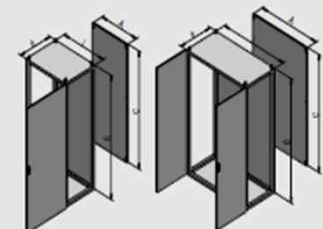
-T24 Enclosure frame: Dipcoat-primed, powder-coated on the outside, flat  
-Door, roof, side panel, rear panel: Dipcoat-primed, powder-coated on the outside, textured paint  
-Mounting plate and bottom plates: Zinc-plated

#### Supply includes:

-T24 Enclosure frame with door(s), 3mm double-bit lock insert  
-Mounting plate  
-Bottom plate  
-Rear plate  
-Roof, 4 eye-bolts

#### Approvals:

-CE  
-RoHS  
-IP protection  
-Bearing  
-Salt spray  
-High and low temperature  
-Glow wire  
-Anti-seismic 8 grade



Height: 2000mm, depth: 600mm-800mm

Standard						
Width(B1)mm	800	1000	1000	1200	1200	页码
Height(H1)mm	2000	2000	2000	2000	2000	
Depth (T1) mm	800	600	800	600	800	
Mounting plate width(F1)mm	699	899	899	1099	1099	
Mounting plate height(G1)mm	1896	1896	1896	1896	1896	
Model TC	T24-2088	T24-20106	T24-20108	T24-20126	T24-20128	
Door(s)	1	2	2	2	2	
Weight(kg)	180	200	205	240	270	

#### Available on request

Side panel	T900300049	T900300043	T900300049	T900300043	T900300049	49
Plinth(Height 100mm)	T900700094	T900700097	T900700098	T900700101	T900700102	45
Plinth(Height 200mm)	T900700123	T900700126	T900700131	T900700130	T900700131	45

#### Lock System

Standard supply is MS896, MS867 is available on request

Note: Color: Textured RAL7035, RAL7032 is available on request. Lead time is available on request

# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



**TC9000**  
TC-9000 SERIES PROFILE  
AE Control box

**Material:**  
-Box: Sheet steel 1.5mm  
-Front door: Sheet steel 1.5mm, all-round foamed in PU seal  
-Mounting plate: Zinc-plated 2.5mm

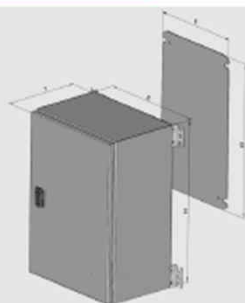
**Colour:**  
-RAL 7035

**Protection category:**  
-IP55 to IEC 60529, complies with NEMA 12

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-High and low temperature  
-Glow-wire

**Surface finish:**  
-Box and front door: Powder-coated on the outside, textured paint  
-Mounting plate: Zinc-plated

**Supply includes:**  
-Box  
-Front door  
-Mounting plate  
-Wall mounting brackets



**TC9000**  
TC-9000 SERIES PROFILE  
KL Control box

**Material:**  
-Box: Sheet steel 1.2mm  
-Box cover: Sheet steel 1.2mm, all-round foamed in PU seal  
-Mounting plate: Zinc-plated 2.5mm

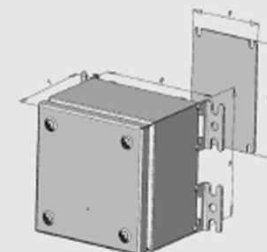
**Colour:**  
-RAL 7035

**Protection category:**  
-IP55 to IEC 60529, complies with NEMA 12

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-High and low temperature  
-Glow-wire

**Surface finish:**  
-Box and box cover: Powder-coated on the outside, textured paint  
-Mounting plate: Zinc-plated

**Supply includes:**  
-Box  
-Box cover  
-Mounting plate  
-Wall mounting brackets



Width(B)mm	200	200	600	300	400	380	600	600	400	600
Height(H)mm	300	300	380	400	500	600	760	800	800	380
Depth(T)mm	120	155	210	210	210	210	210	250	300	350
Box Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Door Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Mounting plate width(F)mm	150	150	550	250	350	330	550	550	350	550
Mounting plate height(G)mm	280	280	380	380	480	580	740	780	780	380
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Model AE	AE-3020120	AE-3020155	AE-3880210	AE-4030210	AE-5040210	AE-6038210	AE-7660210	AE-8060250	AE-8040300	AE-3880350
Weight(kg)	3.5	4.5	20	17	15	21	35	38	22	25

Width(B)mm	150	200	200	300	300	150	200	200	300	300	300
Height(H)mm	150	150	200	150	200	150	150	200	150	200	300
Depth(T)mm	80	80	80	80	80	120	120	120	120	120	120
Box Material thickness (mm)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Door Material thickness (mm)	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Mounting plate width(F)mm	150	200	200	300	300	150	200	200	300	300	300
Mounting plate height(G)mm	150	150	200	150	200	150	150	200	150	200	300
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Model KL	KL-151580	KL-152080	KL-202080	KL-153080	KL-203080	KL-1515120	KL-1520120	KL-2020120	KL-1530120	KL-2030120	KL-3030120
Weight(kg)	1	1	1.5	1.5	2	1.5	1.5	2	2	2.5	3



# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



**TC9000**  
TC-9000 SERIES PROFILE  
AF Control box

**Material:**  
-Box:Sheet steel 2.0mm  
-Front door:Sheet steel 1.2mm,all-round foamed in PU seal  
-Mounting plate:Zinc-plated 2.5mm

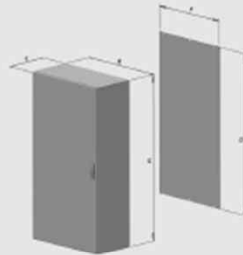
**Colour:**  
-RAL 7035

**Protection category:**  
-IP56 to IEC 60529,complies with NEMA 12

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-High and low temperature  
-Glow-wire

**Surface finish:**  
-Box and front door:Powder-coated on the outside, textured paint  
-Mounting plate:Zinc-plated

**Supply includes:**  
-Box  
-Front door  
-Mounting plate



Width(B)mm	600	1000	1200	600	1200	600	1000	1200	600	1200
Height(H)mm	1200	1200	1200	1400	1600	1200	1200	1200	1400	1600
Depth(T)mm	300	300	300	300	300	400	400	400	400	400
Box Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Door Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Mounting plate width(F)mm	540	940	1140	540	1140	540	980	1140	540	1140
Mounting plate height(G)mm	1155	1155	1155	1355	1555	1155	1155	1155	1355	1555
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Model AF	AF-1260300	AF-1210300	AF-1212300	AF-1460300	AF-1612300	AF-1260400	AF-1210400	AF-1212400	AF-1460400	AF-1612400
Weight(kg)	44	67	79	50	102	48	73	85	55	109



**TC9000**  
TC-9000 SERIES PROFILE  
Glazed door enclosure

**Material:**  
-T20 Enclosure frame:Zinc-plated 2.0mm  
-Side panel:Sheet steel 1.5mm  
-Front door:Aluminum profile steel glass  
-Panel:1.5mm

**Colour:**  
-RAL 7035,RAL7032

**Protection category:**  
-IP55 to IEC 60529,complies with NEMA 12.  
Anti-corrosion grade:C2(C3/C4)

**Surface finish:**  
-Pre-treatment process of polymer nano ceramic+powder-coated

**Application industry:**  
Widely used in power transmission and distribution, wind power industry, automobile manufacturing, machine tool equipment, metallurgical manufacturing, and analytical instruments.

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-Bearing  
-Salt spray  
-High and low temperature  
-Glow-wire  
-Anti-seismic 8 grade



Width(B)mm	800	800	800	800	800
Height(H)mm	1800	2000	2100	2000	2100
Depth(T)mm	600	600	600	800	800
Model TCP	TCP-1886	TCP-2086	TCP-2186	TCP-2088	TCP-2188
Weight(kg)	125	140	147.5	148	155.9

# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



### TC9000

TC-9000 SERIES PROFILE  
AF Control box

**Material:**  
-Box: Sheet steel 2.0mm  
-Front door: Sheet steel 1.2mm, all-round foamed in PU seal  
-Mounting plate: Zinc-plated 2.5mm

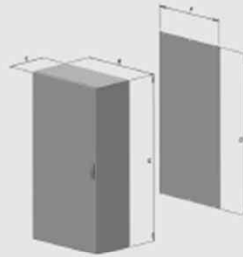
**Colour:**  
-RAL 7035

**Protection category:**  
-IP56 to IEC 60529, complies with NEMA 12

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-High and low temperature  
-Glow-wire

**Surface finish:**  
-Box and front door: Powder-coated on the outside, textured paint  
-Mounting plate: Zinc-plated

**Supply includes:**  
-Box  
-Front door  
-Mounting plate



Width(B)mm	600	1000	1200	600	1200	600	1000	1200	600	1200
Height(H)mm	1200	1200	1200	1400	1600	1200	1200	1200	1400	1600
Depth(T)mm	300	300	300	300	300	400	400	400	400	400
Box Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Door Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Mounting plate width(F)mm	540	940	1140	540	1140	540	980	1140	540	1140
Mounting plate height(G)mm	1155	1155	1155	1355	1555	1155	1155	1155	1355	1555
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Model AF	AF-1260300	AF-1210300	AF-1212300	AF-1460300	AF-1612300	AF-1260400	AF-1210400	AF-1212400	AF-1460400	AF-1612400
Weight(kg)	44	67	79	50	102	48	73	85	55	109



### TC9000

TC-9000 SERIES PROFILE  
Glazed door enclosure

**Material:**  
-T20 Enclosure frame: Zinc-plated 2.0mm  
-Side panel: Sheet steel 1.5mm  
-Front door: Aluminum profile steel glass  
-Panel: 1.5mm

**Colour:**  
-RAL 7035, RAL 7032

**Protection category:**  
-IP55 to IEC 60529, complies with NEMA 12.  
Anti-corrosion grade: C2 (C3/C4)

**Surface finish:**  
-Pre-treatment process of polymer nano ceramic + powder-coated

**Application industry:**  
Widely used in power transmission and distribution, wind power industry, automobile manufacturing, machine tool equipment, metallurgical manufacturing, and analytical instruments.

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-Bearing  
-Salt spray  
-High and low temperature  
-Glow-wire  
-Anti-seismic 8 grade



Width(B)mm	800	800	800	800	800
Height(H)mm	1800	2000	2100	2000	2100
Depth(T)mm	600	600	600	800	800
Model TCP	TCP-1886	TCP-2086	TCP-2186	TCP-2088	TCP-2188
Weight(kg)	125	140	147.5	148	155.9



# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



### TC9000

TC-9000 SERIES PROFILE

AF Control box

#### Material:

- Box: Sheet steel 2.0mm
- Front door: Sheet steel 1.2mm, all-round foamed in PU seal
- Mounting plate: Zinc-plated 2.5mm

#### Colour:

- RAL 7035

#### Protection category:

- IP56 to IEC 60529, complies with NEMA 12

#### Approvals:

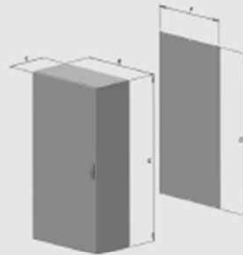
- CE
- RoHS
- IP protection
- High and low temperature
- Glow-wire

#### Surface finish:

- Box and front door: Powder-coated on the outside, textured paint
- Mounting plate: Zinc-plated

#### Supply includes:

- Box
- Front door
- Mounting plate



Width(B)mm	600	1000	1200	600	1200	600	1000	1200	600	1200
Height(H)mm	1200	1200	1200	1400	1600	1200	1200	1200	1400	1600
Depth(T)mm	300	300	300	300	300	400	400	400	400	400
Box Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Door Material thickness (mm)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Mounting plate width(F)mm	540	940	1140	540	1140	540	980	1140	540	1140
Mounting plate height(G)mm	1155	1155	1155	1355	1555	1155	1155	1155	1355	1555
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Model AF	AF-1260300	AF-1210300	AF-1212300	AF-1460300	AF-1612300	AF-1260400	AF-1210400	AF-1212400	AF-1460400	AF-1612400
Weight(kg)	44	67	79	50	102	48	73	85	55	109



### TC9000

TC-9000 SERIES PROFILE

Glazed door enclosure

#### Material:

- T20 Enclosure frame: Zinc-plated 2.0mm
- Side panel: Sheet steel 1.5mm
- Front door: Aluminum profile steel glass
- Panel: 1.5mm

#### Colour:

- RAL 7035, RAL 7032

#### Protection category:

- IP55 to IEC 60529, complies with NEMA 12
- Anti-corrosion grade: C2 (C3/C4)

#### Surface finish:

- Pre-treatment process of polymer nano ceramic + powder-coated

#### Application industry:

- Widely used in power transmission and distribution, wind power industry, automobile manufacturing, machine tool equipment, metallurgical manufacturing, and analytical instruments.

#### Approvals:

- CE
- RoHS
- IP protection
- Bearing
- Salt spray
- High and low temperature
- Glow-wire
- Anti-seismic 8 grade



Width(B)mm	800	800	800	800	800
Height(H)mm	1800	2000	2100	2000	2100
Depth(T)mm	600	600	600	800	800
Model TCP	TCP-1886	TCP-2086	TCP-2186	TCP-2088	TCP-2188
Weight(kg)	125	140	147.5	148	155.9

# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



### TC9000

TC-9000 SERIES PROFILE  
Single AP console

#### Material:

- Enclosure: Sheet steel 1.5mm
- Door: Sheet steel 2.0mm, all-round polyurethane foam seal strips
- Console cover: Sheet steel 2.0mm, all-round polyurethane foam seal strips
- Mounting plate: Zinc-plated 2.5mm

#### Surface finish:

- Enclosure cover and door: Powder-coated, textured paint
- Mounting plate: Zinc-plated

#### Colour:

- RAL 7035

#### Protection category:

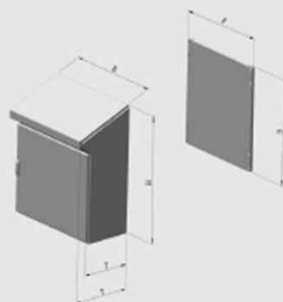
- IP55 to IEC 60529, complies with NEMA 12

#### Supply includes:

- Enclosure
- Front door
- Mounting plate
- Console cover

#### Approvals:

- CE
- RoHS
- IP protection
- High and low temperature
- Glow wire



### TC9000

TC-9000 SERIES PROFILE  
Double AP console

#### Material:

- Enclosure: Sheet steel 1.5mm
- Door: Sheet steel 2.0mm, all-round polyurethane foam seal strips
- Console cover: Sheet steel 2.0mm, all-round polyurethane foam seal strips
- Mounting plate: Zinc-plated 2.5mm

#### Surface finish:

- Enclosure, cover and door: Powder-coated, textured paint
- Mounting plate: Zinc-plated

#### Colour:

- RAL 7035

#### Protection category:

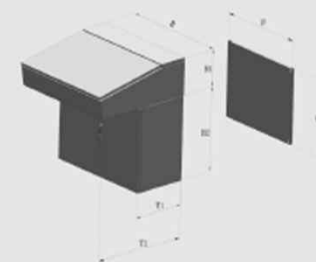
- IP55 to IEC 60529, complies with NEMA 12

#### Supply includes:

- Enclosure
- Front door
- Mounting plate
- Console cover

#### Approvals:

- CE
- RoHS
- IP protection
- High and low temperature
- Glow wire



Width(B)mm	600	800	1000	1200
Height(H)mm	960	960	960	960
Depth(T)mm	400/480	400/480	400/480	400/480
Console material thickness (mm)	1.5	1.5	1.5	1.5
Door material thickness (mm)	2.0	2.0	2.0	2.0
Mounting plate width(F)mm	532	732	932	1132
Mounting plate height(G)mm	780	780	780	780
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5
Model AP	AP-9680400	AP-9680400	AP-9610400	AP-9612400
Weight(kg)	68	75	80	95

Width(B)mm	600	800	1000	1200
Upper box height(H1)mm	260	260	260	260
Bottom box height(H2)mm	580	580	580	580
Upper box depth(T2)mm	400	400	400	400
Bottom box depth(T1)mm	750	750	750	750
Console material thickness (mm)	1.5	1.5	1.5	1.5
Door material thickness (mm)	2.0	2.0	2.0	2.0
Mounting plate width(F)mm	451	651	851	1051
Mounting plate height(G)mm	516	516	516	516
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5
Model AP2	AP2-8480400	AP2-8480400	AP2-8410400	AP2-8412400
Weight(kg)	85	95	110	120



# 고강도, 경량, CS 열반용 프레임 외함 (특허제품) – TC9000

## Profiled Frame Enclosure - Catalog Data



### TC9000

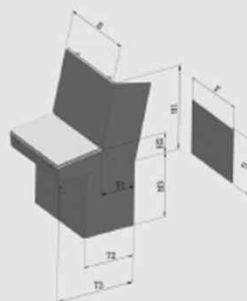
TC-9000 SERIES PROFILE  
Three AP console

**Material:**  
-Enclosure: Sheet steel 1.5mm  
-Door: Sheet steel 2.0mm, all-round polyurethane foam seal strips  
-Console cover: Sheet steel 2.0mm, all-round polyurethane foam seal strips  
-Mounting plate: Zinc-plated 2.5mm

**Colour:**  
-RAL 7035

**Protection category:**  
-IP55 to IEC 60529, complies with NEMA 12

**Approvals:**  
-CE  
-RoHS  
-IP protection  
-High and low temperature  
-Glow-wire



**Surface finish:**  
-Enclosure cover and door: Powder-coated, textured paint  
-Mounting plate: Zinc-plated

**Supply includes:**  
-Enclosure  
-Front door  
-Mounting plate  
-Console cover

Width(B)mm	600	800	1000	1200
Upper box height(H1)mm	870	870	870	870
Middle box height(H2)mm	210	210	210	210
Bottom box height(H3)mm	680	680	680	680
Upper box depth(T1)mm	386	386	386	386
Middle box depth(T3)mm	889	889	889	889
Bottom box depth(T2)mm	600	600	600	600
Console material thickness (mm)	1.5	1.5	1.5	1.5
Door material thickness (mm)	2.0	2.0	2.0	2.0
Mounting plate width(F)mm	445	645	845	1045
Mounting plate height(G)mm	560	560	560	560
Mounting plate thickness (mm)	2.5	2.5	2.5	2.5
Model AP3	AP3-15580600	AP3-15580600	AP3-15510800	AP3-15512600
Weight(kg)	115	130	140	152



### TC9000

TC-9000 SERIES PROFILE  
Mounting plate



No.	Name	Specification	Qty.
1	Mounting plate fixing kit-up A		1
2	Mounting plate fixing kit-up B		1
3	Cage nut	M8	2
4	Duck nut	M8	2
5	Raised head screw	M8*16	2
6	Mounting plate screw		2
7	Flat washer	M8	2
8	Spring washer	M8	2



No.	Name	Specification	Qty.
1	Mounting plate fixing kit-middle A		1
2	Mounting plate fixing kit-middle B		1
3	Cage nut	M8	2
4	Duck nut	M8	2
5	Mounting plate screw		2
6	Raised head screw	M8*16	2



No.	Name	Specification	Qty.
1	Mounting plate fixing kit-bottom A		2
2	Mounting plate fixing kit-bottom B		2
3	Self-tapping screw	M5*10	2
4	Bottom side beam		2

Mounting plate was fixed in the frame with mounting plate fixing kits. The position is adjustable.

Material: High quality cold rolled hot-dip galvanized sheet, 3.0mm

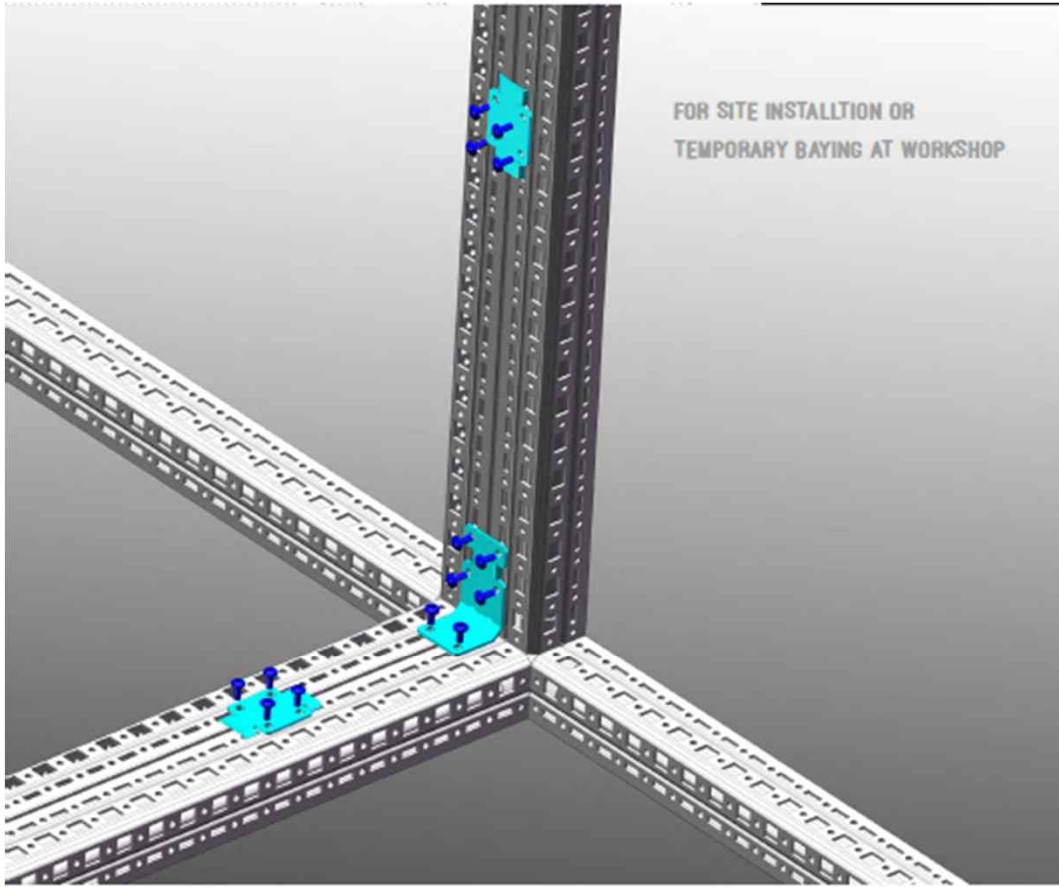
Note: Install a completely electronic mounting plate needs all the above accessories, such as the quantities showed in sheets. Contact us if questionable.

# 고강도, 경량, CS 열반용 프레임 외함 (특허제품)

## Profiled Frame Enclosure - Catalog Data

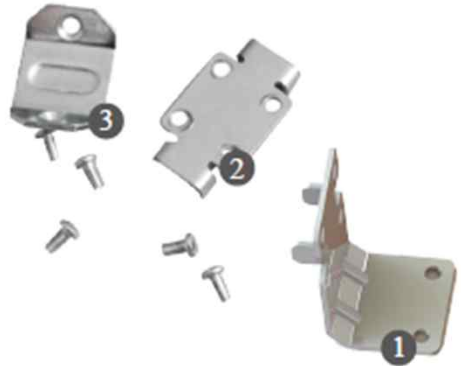


**TC9000**  
TC-9000 SERIES PROFILE  
Large swing frame



FOR SITE INSTALLTION OR  
TEMPORARY BAYING AT WORKSHOP

**Door stay of swing frame**  
Keep the swing frame open and installed on the  
bottom of swing frame



- 1 internal baying clamp-1
- 2 internal baying clamp-2
- 3 external baying clamp

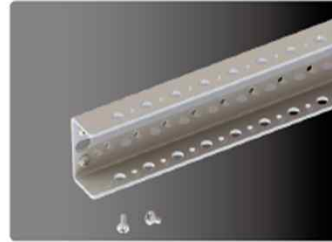
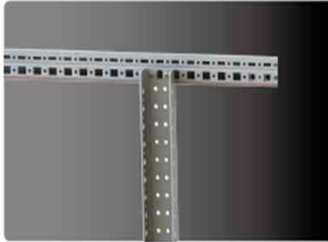


# 고강도, 경량, CS 열반용 프레임 외함 (특허제품)

## Profiled Frame Enclosure - Catalog Data

### U-shaped column

With standard 25mm module for installation electric beam. Horizontally installed on the frame and can be adjustable.  
Material: 2.0mm sheet steel  
Finish: painted



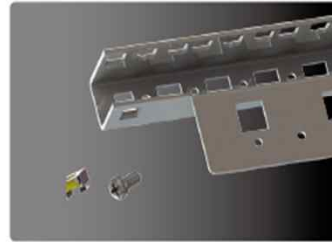
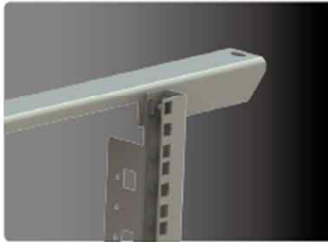
### Chassis with single module line:

Chassis with 25 mm pitch pattern: Used for binding wire. Height adjustable.  
Material: 1.5mm sheet steel  
Finish: Zinc-plated



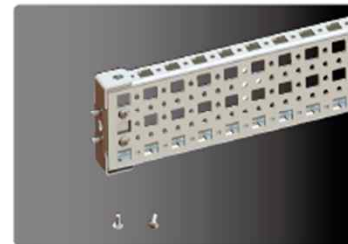
### 19" angle rail

With standard U module for installation 19" electronic facility. Horizontally installed on the frame and can be adjustable.  
Material: 2.0mm sheet steel  
Finish: painted



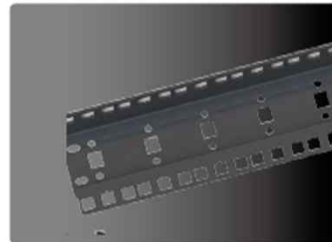
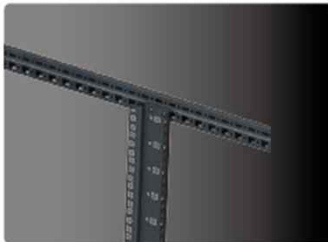
### Slicing chassis with triple module line:

Chassis with 25 mm pitch pattern. without mounting flange for mounting heavy-duty equipment. Height adjustable.  
Material: 1.5mm sheet steel  
Finish: Zinc-plated



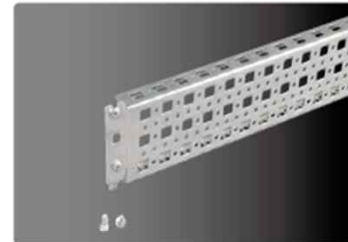
### 19" column

With standard module for installation 19" electronic facility. Horizontally installed on the frame and can be adjustable.  
Material: 2.0mm sheet steel  
Finish: painted



### Chassis with triple module line:

Chassis with 25mm pitch pattern with mounting flange for mounting heavy-duty equipment. Height adjustable.  
Material: 1.5mm sheet steel  
Finish: Zinc-plated



# 고강도, 경량, CS 열반용 프레임 외함 (특허제품)

## Profiled Frame Enclosure - Catalog Data

### Hanging pieces:

Optimizing assembly process.  
Efficient during mount and  
dismount.



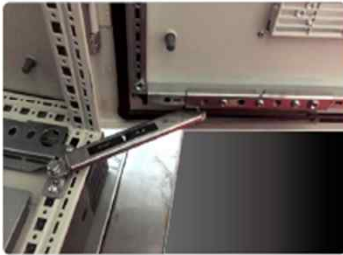
### Utility lectern:

For programming units etc.  
Prepared for mounting on the  
tubular door frame of TC Load  
capacity: max. 30 kg.  
Material: Sheet steel



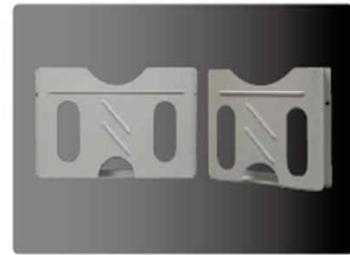
### Door stay:

To secure the door in the open  
position.



### Wiring plan pockets of sheet steel:

Holds wiring plans  
Material: Sheet steel  
Model: A3 and A4



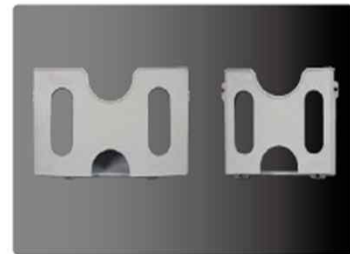
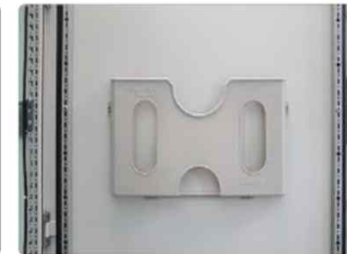
### Door protector:

Prevent the deformation during  
transportation and utilization.



### Plastic wiring plan pockets:

Holds wiring plans  
Material: Plastic  
Model: A3 and A4



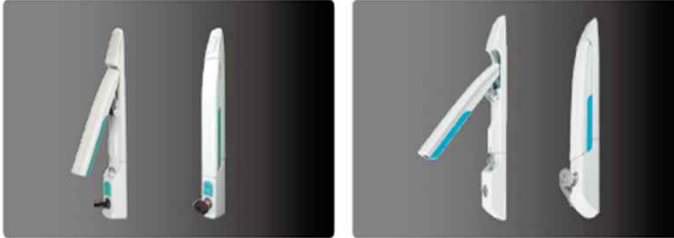


# 고강도, 경량, CS 열반용 프레임 외함 (특허제품)

## Profiled Frame Enclosure - Catalog Data

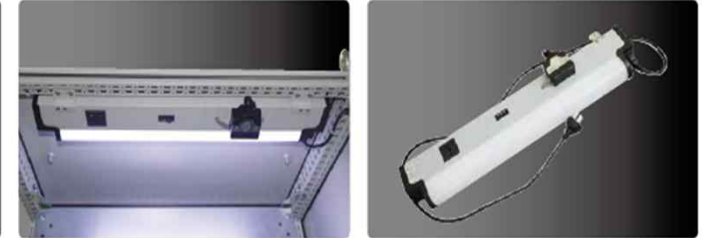
### Luxury button lock/Luxury lock:

Luxury button lock: the handle adopts the pull-push method, no need for turn to open, efficient space utilization; push button control; flexible and convenient  
Luxury lock: with handle, top-grade appearance, easy to switch, strong and perfect sealing



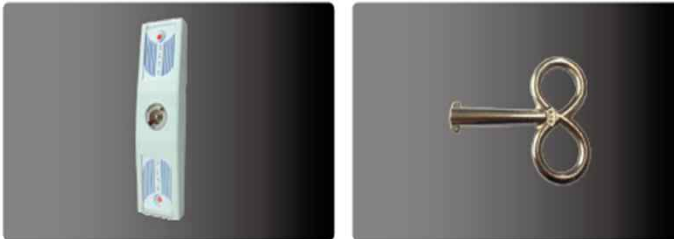
### Emergency LED light:

Technical specifications	Socket	Width	Approvals
"9W 220V 50/60Hz"	Yes	400mm	3C
"15W 220V 50/60Hz"	Yes	600mm	3C
"18W 220V 50/60Hz"	Yes	700mm	7C



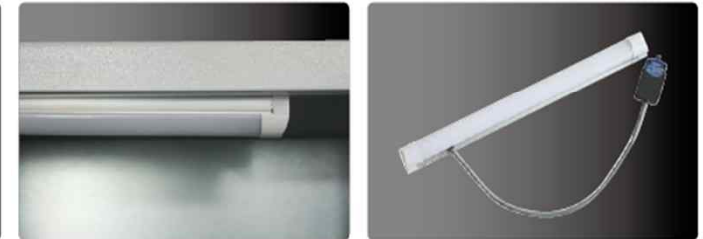
### Standard lock/big key:

Standard lock: flat structure, turn to open, three point locking system, strong, perfect sealing  
Big key: with luxury handle; humane and top-grade



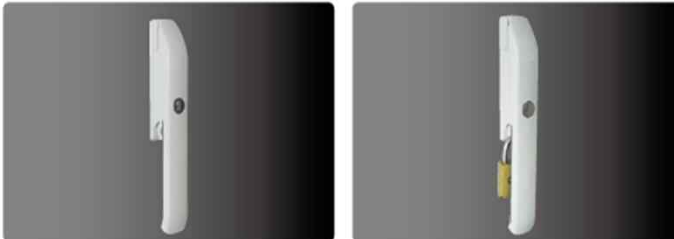
### LED light:

Technical specifications	Socket	Width	Approvals
"6W 220V 50/60Hz"	No	200	3C
"9W 220V 50/60Hz"	No	300	3C
"12W 220V 50/60Hz"	No	400	3C



### Luxury outdoor lock:

Two dimensions of structure with humane handle; convenient and can be hanged with locks to improve safety.



### Filter with fan:

For ventilation and heat dissipation. Installation position and quantities as you required



Steel Fabrication & Framed + Welded Enclosures for  
IP55~66, ISO9001, CE, UL, EN, KR, ROHS, NEMA, CCC, SEISMIC, BEAT-WAVE

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