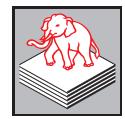


# ELEPHANT Plusline

Concealed Ceiling Metal Profile



**The Siam Gypsum Industry (Saraburi) Co., Ltd.**  
A member of USG Boral Building Products

 **ELEPHANT**  
Gypsum Board

# Plusline Drywall Ceiling Metal Profile



## Plusline Drywall Ceiling Metal Profiles

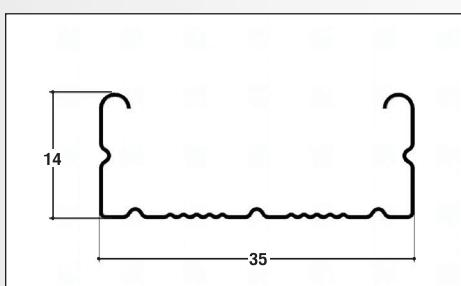
**New metal frame innovation by Elephant Brand,**  
solves various problems including

- Uneven finished ceiling levels (sagging).
- Weak metal frames, risking collapsed ceilings.
- An economical solution yet still meets international standards for both safety and aesthetics of finished ceiling.



## Applications

- High quality metal profile for installation of plasterboards for interior concealed-grid ceiling.



## Specifications

Gauge	0.40 mm.
Dimensions	14 x 35 mm.
Length	4 m. (per piece)
Weight	0.83 kg. (per piece)



## Strong & Safe

- Manufactured from high quality, certified cold-rolled galvanized steel of 0.40 mm gauge.
- Specially designed profile increases system strength.
- All component parts (accessories) were specially designed and tested for safety.
- All component parts (accessories) were manufactured from high quality material.
- Actual weight as specified (provable by weighing).



## Easy & Fast Installation

- Easy to verify correct installation after completion.
- Easier and faster installation than traditional system.
- Modern manufacturing technique ensure high manufacturing precision.
- No special equipments needed for installation.



## Lightweight

- Lighter than wood frames, Metal profile does not twist.



## Durable

- Hot-dipped galvanized steel of JIS G3302 standard galvanized with 120 g/m<sup>2</sup> of zinc is suitable for humid climates, decreasing rusting problems.



## Insect-Free

- Free from termites and other insects.

# Plusline Drywall Ceiling Metal Profile

## Component Parts



Plus C-Line  
14 x 35 x 0.40 mm. Length 4 m.



Plus Wall Angle  
20 x 20 x 0.40 mm. Length 2.4 m.



Plus Connect Clip  
Gauge 0.5 mm.

Adjustable Hanger Set-Lower Part  
Length 200 mm.



⑧

Elephant Fix Spring\*



Expansion Bolt



Bolt Angle



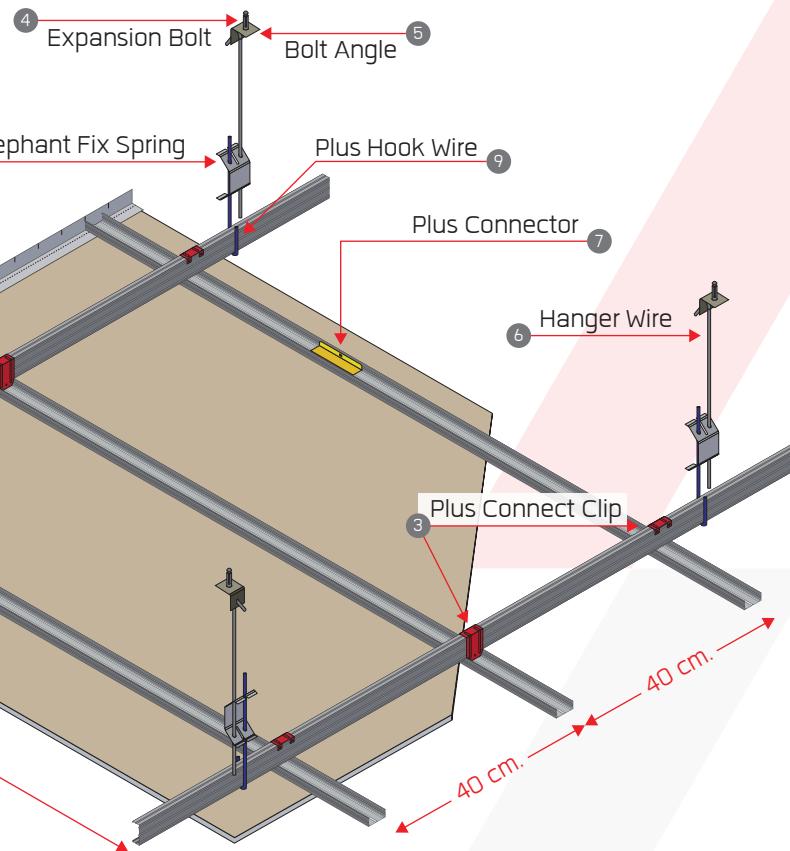
Hanger Wire\*  
Ø4 mm. Length 0.6 m., 1.1 m., 2.1 m.



Plus hook Wire\*



Plus Connector  
Gauge 0.50 mm.



\*Patent Pending

# Plusline Drywall Ceiling Metal Profile



## Installation Method

1. Mark ceiling level around perimeter of room and screw in Plus Wall Angle.
2. Assemble hanging set and adjust length of Hanger Wire and Plus Hook Wire to the distance of the upper floor and the main runner. (Warning: For safety reasons, use only Elephant brand 4 mm. diameter Hanger Wires and Hook Wires)
3. Securely attach bolt angles to upper floor in a 1.00 x 1.20 meter grid. Hang the assembled hanging sets to the bolt angles.
4. Attached Plus C-Line vertically into hook wire. Make sure that each hanging set (Plus Hook Wire) is attached on switching side on every 1.20 meter. Connect main runners by using Plus Connector. Ensure that connection points are not all paralleled across the ceiling. Readjust height of the hanging set again if necessary.
5. Lock Plus Connect Clip into Plus C-Line cross-runners, then lock to Plus C-Line main runners at every 40 cm. intervals. Verify that assembled metal frame is leveled. Make sure that each Plus Connect Clip is attached on switching side.
6. Screw in tapered-edge Elephant Brand gypsum board with 25 mm. screws at every 30 cm. intervals and 20 cm. interval at the edge of the board.
7. Coat the joint with Elephant Easy Joint 120 and cotton tape according to compound instructions.

# Plusline Drywall Ceiling Metal Profile

## Safety Assurance

Not only an economical metal profile, but Plus C-Line also developed with safety in mind. Moreover, Plus C-Line increase user confidence with:

- Advanced manufacturing process that increases profile loading capacity with **more than 3 times minimum safety factor**
- All component parts use superior raw material quality than other similar products in the market.
- Designed for easy installation and reduce incorrect installation.
- Easy to verify correct installation after completed.
- Corrosion-resistant with minimum (zinc coat) galvanizing of 120 g/m<sup>2</sup> which is **thicker than 50% of similar profiles in the market**. In addition to directly affecting the usage life of metal profiles, corrosion is one of the main factors affecting suspended ceiling safety. As metal profiles are not seen after completion of ceiling work, there is no warning of insecure ceiling.

	Before Test	After Test
Plus C-Line		
Other C-Line no.26 in the market		

Figure shows the Salt Spray Test (following ASTM B117-97, ASTM D1654) result after 300 continuous hours, comparing Plus C-Line with other C-Line no. 26 in the market.

## Elephant Fix Spring

Safe	Elephant Fix Spring manufactured from High Quality Stainless Steel for spring, pass the Salt Spray Test (following ASTM B117-97) more than 300 continuous hours, compared with other spring in the market.		
Strong	Elephant Fix Spring especially designed to hold tight rod wire for high loading capacity. The assembled hanging sets pass more than 120 kg. tension test. (Safety factor = 4)		
Standard	Elephant Fix Spring pass 1,000 times of continuous pressing test without deformation.		

The testing result from **“Technical Development Center”** in France shows Metal Profiles (C-Line) in the market, manufactured from second grade or low quality galvanized steel, have screws fastened between plasterboard and C-Line of less than 50% (only 4 out of 10 pieces of screw are fastened, with the remaining coming loose), which can cause the collapse of the ceiling.

## Question & Answer

**Q**

What is the required thickness of C-Lines that can support human weight?  
(i.e. make the system trafficable)

**A**

In Thailand, Drywall Ceiling system that are trafficable are not readily available. Such a system would have to be tailor-designed for the application. In any case, the loading capacity of a drywall ceiling system does not depend only on the C-Line gauge, but also on the other component parts and the type of installation

**Q**

How does reduced thickness of metal profile (C-Line) affect the finished ceiling?

**A**

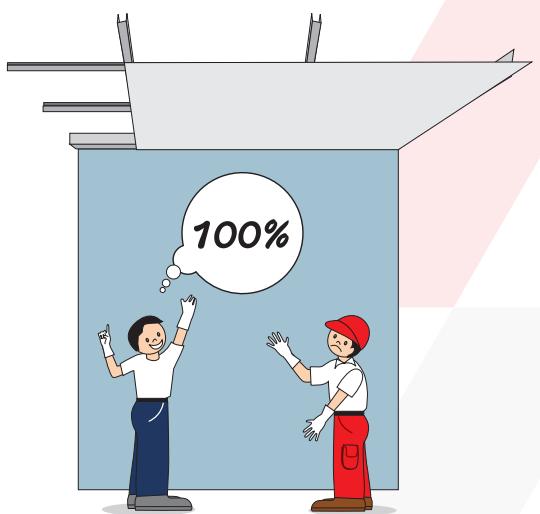
Thinner gauge C-Line is lighter and costs less. However, most C-Line profiles in Thailand have such reduced thicknesses that they do not conform to safety standards. In many cases, we find ceiling deformation, non-flatness, sagging and distorted edges. In addition to being unsightly, there is also the real threat of the ceiling collapsing. And as there are usually no visible warning signs, it is difficult to prevent a ceiling from collapsing. Therefore, it is important to select quality of C-Lines that meet safety standards.

**Q**

What factors affect the ceiling's loading capacity?

**A**

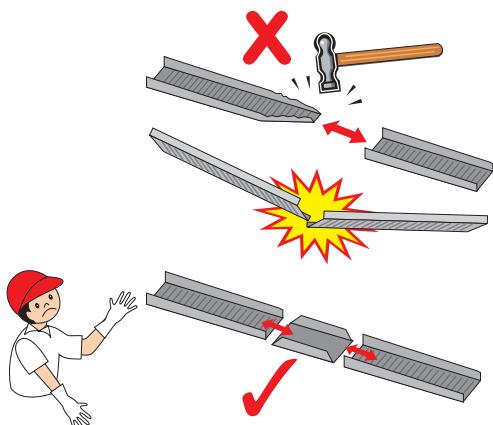
- Quality metal profiles and other component parts that meet standards and are certified by reliable institutions.
- Thickness of metal profile and other component parts.
- Thickness of zinc coating on galvanized steel of metal profile.
- Spacing of hanging sets, main runner and cross runner of metal profile following designing and testing standard of manufacturer.
- Spacing of each screw affixing gypsum board.
- Quantity of screws that can fasten gypsum board and metal profile together.
- Gross weight of ceiling system and other components.
- Affixing of additional components on ceiling system following standard of manufacturer.



# Plusline Drywall Ceiling Metal Profile

Q

Is it correct to connect metal profiles (C-Lines) together by jamming them into each other and riveting?



A

It is an incorrect method since this will create the weakest point of the ceiling system. The correct method is to use a connecting clip designed to connect C-Lines together safely.

Q

Why should we be concerned that metal profiles may rust since it is an internal structure of the ceiling and not exposed?



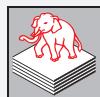
A

Moisture above the ceiling can easily increase from higher temperature than the room temperature, from hot-water pipes, from smoke absorber and from water leakages. Moisture can cause rusting easier and faster if the metal profiles do not meet corrosion-resistance standards.

Drywall Ceiling Metal Profile range Elephant Brand	Drywall Partition Metal Profile ranges Elephant Brand
 <ul style="list-style-type: none"><li>- Galvanized steel of 0.52 mm. gauge (no.24)</li><li>- 5-time minimum safety factor</li><li>- Corrosion-resistant</li><li>- Easy to install and verify correct installation</li></ul> <p><b>Proline</b></p>	 <p>Loading capacity maximum at 100 kg/point of 120x120 cm. grid or maximum span at 3 Meters for installing with large service system</p> <p><b>Proline Max</b></p>
 <ul style="list-style-type: none"><li>- Metal profile of galvanized steel 0.52 mm. gauge.</li><li>- Strong and durable</li><li>- Corrosion-resistant</li></ul> <p><b>Prowall</b></p>	 <ul style="list-style-type: none"><li>- Economic metal profile of galvanized steel 0.40 mm. gauge.</li><li>- Strong and durable</li><li>- Corrosion-resistant</li></ul> <p><b>Pluswall</b></p>

## Siam Gypsum Policy

- We commit to develop an offer adapted to key market segments answering customer's expectations.
- We commit to constantly produce and deliver in full the products, solutions and services expected by our customers.
- We commit to communicate regularly our customers our quality performance.



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