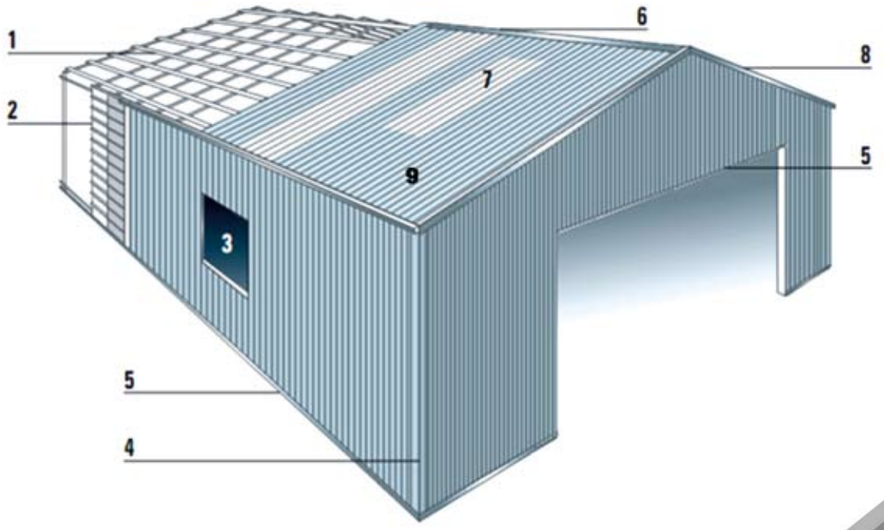
stunas
industries

OPTIMIZED STRUCTURES IN GALVANIZED STEEL

ILLUSTRATION OF APPLICATION



1- OPTIMIZED STRUCTURE IN Z OR Σ PROFILES.....

2- BARDAGE IN SANDWICH PANELS .....

3- SERRATIONS.....

4- INTERNAL AND EXTERNAL ANGLES.....

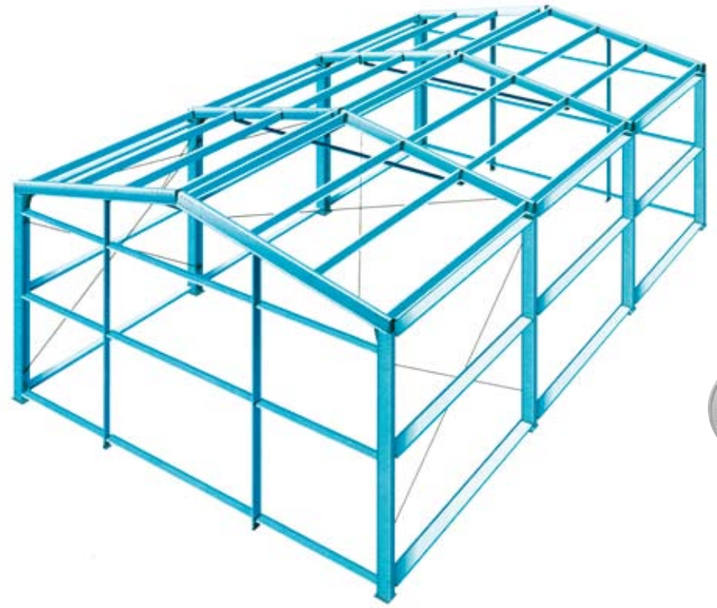
5- WATER FLAP.....

6- DOUBLE RIDGE TILE, DENTED RIDGE TILE, FLAT RIDGE TILE.....

7- TRANSLUCENT IN POLYCARBONATE.....

8- TAPE OF LIP .....

9- ROOF IN SANDWICH PANELS .....



TÜVRheinland® CERT ISO 9001

Approved by **SECURAS**

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ABOUT STUNAS INDUSTRIES

Created in 1995, STUNAS INDUSTRIES was originally manufacturer of steel profiles used in coverage and bardage for the industrial buildings.

In 1998, our company is marked by the starting up of a manufacturing unit of sandwich panels.

Today the STUNAS INDUSTRIES is an innovative industrial company which has for main activity the manufacture and the sale of sandwich panels for the insulation of buildings, refrigerated panels for cold insulation, the steel profiles, the refrigerated doors and the cold rooms dedicated to all the market segments: industry, agriculture and residential.

We have three production units proposing a complete range of product. Our production capacity is 1,5 millions of m2 of panels a year on modern lines endowed with all the necessary means to obtain the best quality. Our panels are made from superior-quality steel rolls and injected polyurethane foam without CFC.

Our production capacity for the refrigerated doors is 2000 units a year. They are designed to satisfy the high requirement of the industry sectors.

Backed by more than 12 years of experience in the manufacture of the sandwich panels, in 2010 STUNAS INDUSTRIES launched a new product «ICEBERG» : flexible cold rooms intended for the preservation of foodstuffs, provided with a system of male female interlocking panels with eccentric hook.

STUNAS INDUSTRIES also makes buildings in galvanized steel structure delivered in kit in factory for commercial, industrial and agricultural applications. The structures consisting mainly of profiles Z and Sigma are lighter than the conventional structures which allows an easier and faster assembly and a better economic profitability. STUNAS INDUSTRIES always makes a point of honor to better serve its customers by extending its range of products and by improving its services.

In the interest of better serving its customers, STUNAS INDUSTRIES puts its engineering firm at their disposal to make a complete technical assistance from the elaboration of the plans to the follow-up of construction sites.

EXPORT

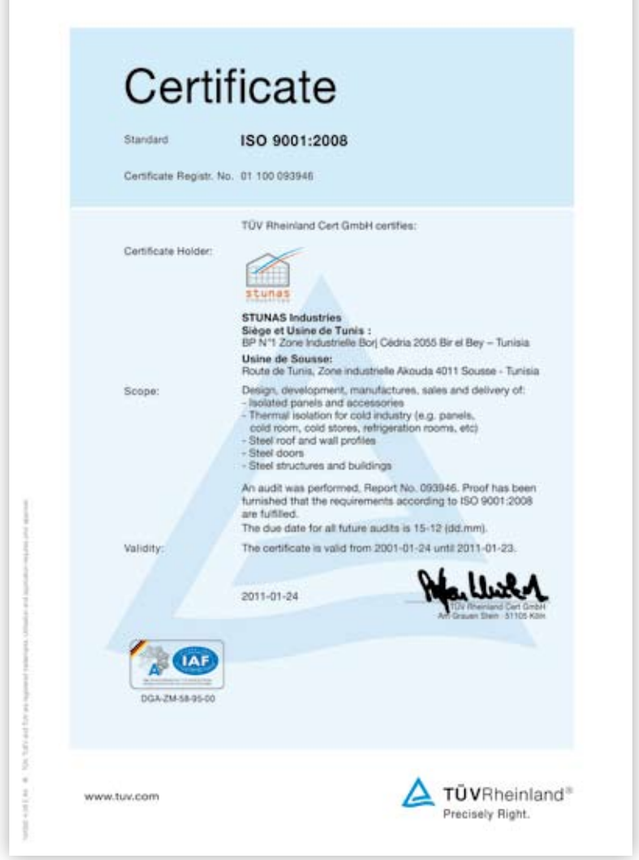
Since its creation, STUNAS INDUSTRIES has strengthened its presence in local and export markets. Today our products are exported to Africa, Europe and the Middle East.

In accordance with international and quality standards, our products are deliveried without delay and in optimum conditions.

Sousse factory

Tunis factory

OPTIMIZED STRUCTURES IN GALVANIZED STEEL



Certificate

Standard ISO 9001:2008

Certificate Registr. No. 01 100 093946

TÜV Rheinland Cert GmbH certifies:

Certificate Holder:

STUNAS Industries
Siège et Usine de Tunis :
BP N°1 Zone Industrielle Borj Cédria 2055 Bir el Bey – Tunisia
Usine de Sousse:
Route de Tunis, Zone industrielle Akouda 4011 Sousse - Tunisia

Scope:

Design, development, manufactures, sales and delivery of:
- Isolated panels and accessories
- Thermal isolation for cold industry (e.g. panels, cold room, cold stores, refrigeration rooms, etc)
- Steel roof and wall profiles
- Steel doors
- Steel structures and buildings

An audit was performed, Report No. 093946. Proof has been furnished that the requirements according to ISO 9001:2008 are fulfilled.
The due date for all future audits is 15-12 (dd.mm).

Validity:

The certificate is valid from 2001-01-24 until 2011-01-23.

2011-01-24

TÜV Rheinland Cert GmbH
Am Grauen Stein · 51105 Köln

IAF

DGA-ZM-58-95-00

www.tuv.com

TÜVRheinland®
Precisely Right.

CERTIFICATE

Furthermore, STUNAS INDUSTRIES has set up a quality management system allowing a strict control of our manufacturing process. Our company is certified according to ISO 9001: 2008 by TÜV.

Z - PROFILE

APPLICATION

The Z-profiles are ideal and solid support for a range of walls and roofs in the building industry.

They settle easily on the frame and guarantee a well balanced fixation.

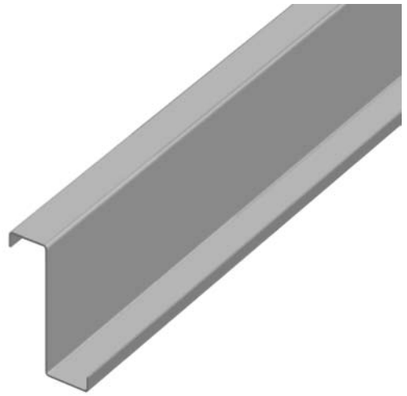
The Z-profile is a galvanized profile formed in cold, which replaces easily the wood or the flattened profile.

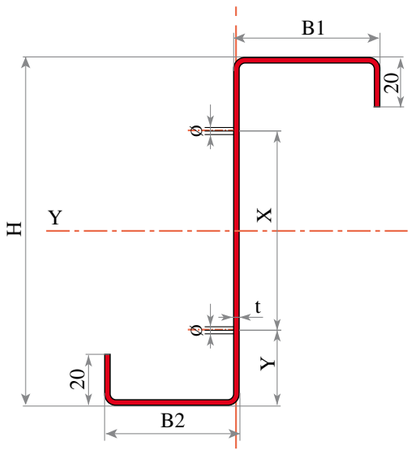
STANDARD EXECUTION

- Cold formed profile in Z shape in flat wall at right angles to each others
- Galvanized steel according to EN10346
- Height : 140 mm to 300 mm
- Thickness steel sheet : 1.50 mm, 2.00 mm, 2.50 mm
- Length : until 12000 mm
- Length leaky and drilled at your needs
- Perforation : Ø 14 mm, 16 mm or 18 mm

SIZES

Type	H (mm)	B1 (mm)	B2 (mm)	t (mm)	X (mm)	Y (mm)	Dev.
Z140	140	65	60	1.50 / 2.50	50	45	285
Z160	160	65	60	1.50 / 2.50	70	45	305
Z180	180	65	60	1.50 / 2.50	80	50	325
Z200	200	65	60	1.50 / 2.50	100	50	345
Z220	220	65	60	1.50 / 2.50	120	50	365
Z250	250	79	68	2.00 / 2.50	150	52	417
Z300	300	95	85	2.00 / 2.50	190	56	500





TECHNICAL CHARACTERISTICS

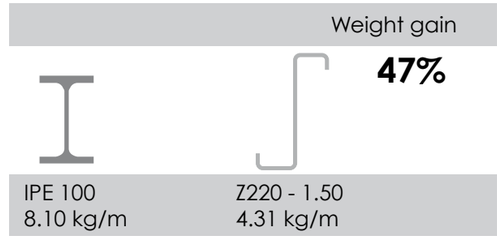
Type	Thickness (mm)	Weight (kg/ml)	Iy (cm4)	Iy/Vy (cm3)	Iz (cm3)	Iz / Vz (cm3)
Z140	1.50	3.36	135.0	18.96	41.68	6.626
	2.00	4.48	177.7	24.97	54.24	8.656
Z160	1.50	3.60	184.2	22.66	41.69	6.618
	2.00	4.79	242.7	29.86	54.24	8.645
	2.50	5.98	299.9	36.90	66.16	10.590
Z180	1.50	3.84	242.6	26.56	41.69	6.611
	2.00	5.10	320.0	35.03	54.25	8.636
	2.50	6.37	395.8	43.32	66.17	10.570
Z200	1.50	4.07	311.0	30.66	41.70	6.604
	2.00	5.42	410.5	40.17	54.26	8.627
	2.50	6.76	507.9	50.08	66.18	10.560
Z220	1.50	4.31	389.8	34.97	41.7	6.599
	2.00	5.73	514.9	46.18	54.26	8.62
	2.50	7.15	637.5	57.18	66.19	10.560
Z250	2.00	6.55	766.3	59.75	83.76	11.07
	2.50	8.17	949.8	74.06	102.50	13.59
Z300	2.00	7.85	1331	87.04	143.6	15.62
	2.50	9.80	1652	108	176.3	19.24

OPTIMIZED STRUCTURES IN GALVANIZED STEEL

AN ECONOMICAL SOLUTION

The Z-profiles can be used as purlins of roof and ribbands of bardage. In comparaison with hot-rolled profiles, the use of the purlins or ribbands in Z-profile allows a weight reduction until 50 %.

The minimized weight allows an easy manipulation.



	Z Profile	I Profile
Weight (daN/m²)	3,50 to 8,00	> 7
Reache by profile max (m)	12 m	> 10 m
Finishing	**galvanized**	**to treat**
Fixation	**bolted**	**Soldered or bolted**
Production	**Custom made and perforated**	**To saw and to perforate**
Length (m)	**12 m and more**	**12 m**
Handling	**light**	**heavy**

ADVANTAGES

- We propose a complete range of Z -profiles for reaches going to 12 meters. These profiles adapt to all the constructions.
- Our wide range of Z-profiles allows the manufacturers to realize projects in a fast and economic way.
- The volume of the parcel and transport costs are reduced by the shape and the fitting of the Z-profiles which results in a big ease and speed in the unloading and the assembly on construction site.

BOARD OF EQUIVALENCE IPE AND Z-PROFILE

IPE Type	Weight (kg/ml)	Z Type	Thickness (mm)	Weight (Kg/ml)	WEIGHT GAIN
IPE80	6.00	Z140	1.50	3.36	**44%**
		Z140	2.00	4.48	**25%**
		Z160	1.50	3.60	**40%**
IPE100	8.10	Z160	2.50	5.98	**26%**
		Z180	2.00	5.10	**37%**
		Z220	1.50	4.31	**47%**
IPE120	10.40	Z220	2.50	7.15	**31%**
		Z250	2.00	6.55	**37%**
IPE140	12.90	Z250	2.50	8.17	**37%**
		Z300	2.00	7.85	**39%**

OPTIMIZED STRUCTURE IN Z - PROFILES

DESCRIPTION

The steel structures completly galvanized are made from Z-profiles.

Components are light and easy to assemble which allow to build optimized structures.

The construction of offices, houses, bases of lives, farm buildings can so be made in a fast and effective way.

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SECURAS

STANDARD EXECUTION

WIDTH	HEIGHT	LENGTH			
8 m 12 m 15 m >15 m (on request)	2,5 m 3 m 4 m	12 m	18 m	24 m	30 m
		36 m	42 m	48 m	54 m
		60 m	66 m	72 m	78 m
		84 m	90 m	96 m	102 m

ADVANTAGES

- Completely galvanized structure,
- Light construction, which excludes the difficult assemblies,
- Free choice of widths and lengths,
- Fast assembly, thanks to a set to be screwed,
- The composition of the profile offers excellent possibilities for the electric and sanitary installation,
- Free volume with excellent assets for the inside finishing.

COMPOSITION OF COMPLETE STRUCTURE

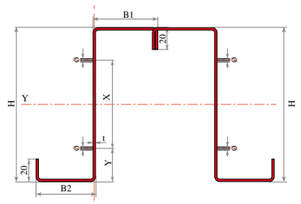
- Galvanized steel structure consisted of Z-profiles which type is determined by the width of the building :
  - Width until 8 m : Z200
  - Width until 12m : Z220
  - Width until 15m : Z250
  - Superior width in 15m : Z300

The structure consists of :

- Posts and farms constituted by 2 coupled Z-profiles
- Purlins of roof and ribbands of bardage in Z- profiles

Accessories :

- Parts of welded mechanic ties
- Bolts of HR galvanized fixation
- Cables with carrier straps for the structures of superior width in 10 m.
- Custom-made opening

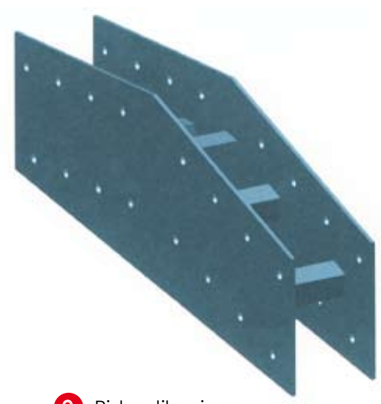


Coupled Z - Profiles

Z - STRUCTURE ASSEMBLY PIECES

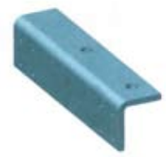
ASSEMBLY PIECES

1 Foot

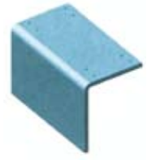


2 Ridge tile piece

3 Angle



4 L-Piece for gable



5 V-Piece for gable

6 U-Piece for wind bracing

7 L-Piece

8 U-Piece

WIND BRACING

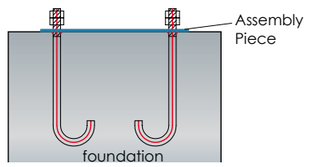
The stability of the structure is assured by wind bracing, galvanized steel cables 6 mm in diameter.

Cables avoid the arrow according to the slope of the building in roof, in smoothing.

FIXATION

Fixation of the structure on the foundation by :

Anchor bolts



Studs

Whole assembly : **Bolts**

Gables assembly : **self-drilled screw**

OPTIMIZED STRUCTURES IN GALVANIZED STEEL

ASSEMBLY PIECES DETAILS

Angle piece and cables with tensioners fixation

1

Posts joining and farms of extreme spans

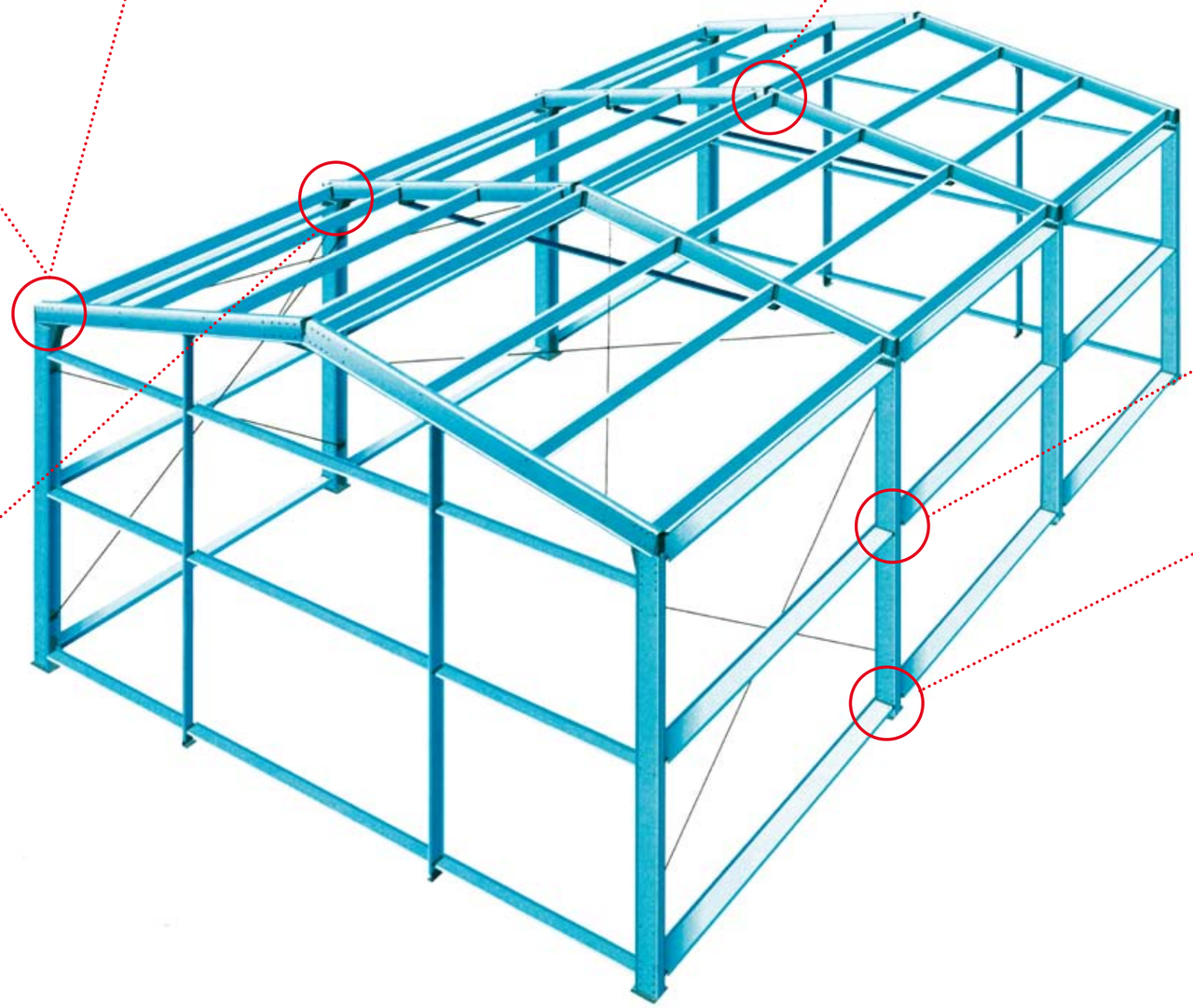
1

Ridge tile angle and roof purlins

3

Coupled z-profiles post

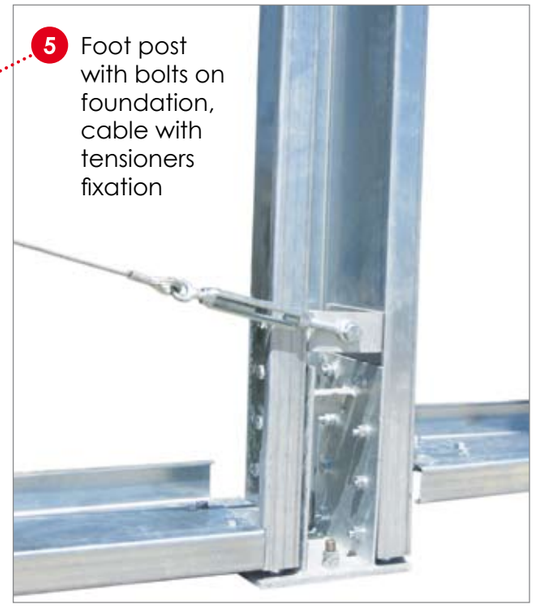
4



Posts joining and bardage ribbands

2

5 Foot post with bolts on foundation, cable with tensioners fixation



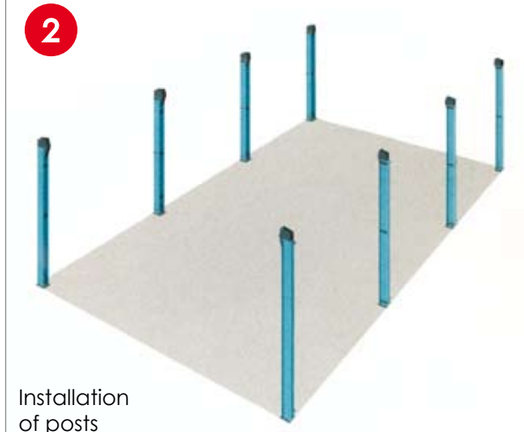
Z-STRUCTURE ASSEMBLY

A RAPID ASSEMBLY ON 6 STEPS

1

Installation
of foots of
posts with bolts
on foundation

2



Installation
of posts

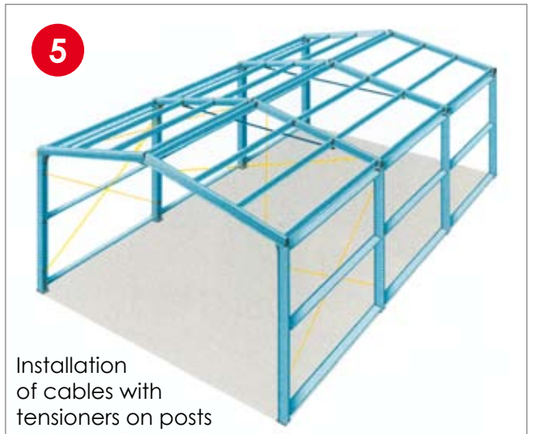
3

Installation
of ribbands,
cables with
tensioners and farms

4

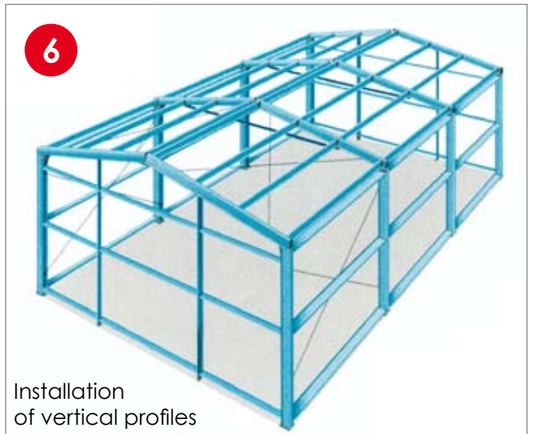
Installation
of roof purlins

5



Installation
of cables with
tensioners on posts
between farms of extreme spans

6



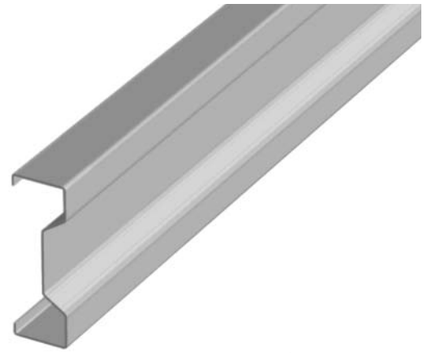
Installation
of vertical profiles
and ribbands of gables

OPTIMIZED STRUCTURES IN GALVANIZED STEEL

Σ- PROFILE

APPLICATION

The Σ-profiles are ideal and solid support for a range of walls and roofs in the building industry.
They settle easily on the frame and guarantee a well balanced fixation.
The Σ-profile is a galvanised profile formed in cold, which replaces easily the wood or the flattened profile.

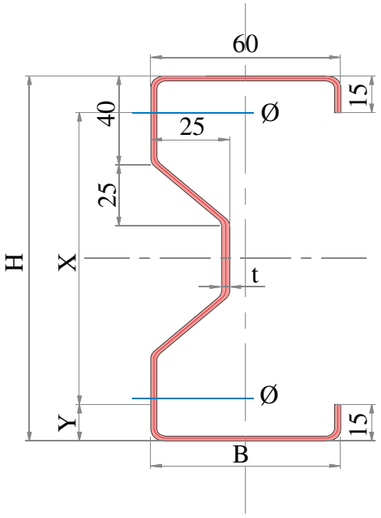


STANDARD EXECUTION

- Galvanized steel according to EN10346
  Σ 160, Σ 180, Σ 200, Σ 220
- Thickness steel sheet : 1.50 mm, 2.00 mm, 2.50 mm
- Length until 12000 mm
- Width of wings : 60mm
- Length leaky and drilled at your needs

SIZES

Type	H (mm)	B1 (mm)	t (mm)	X (mm)	Y (mm)	Dev.
Σ160	160	60	1.50 / 2.50	120	20	310
Σ180	180	60	1.50 / 2.50	140	20	330
Σ200	200	60	1.50 / 2.50	160	20	350
Σ220	220	60	1.50 / 2.50	180	20	370



TECHNICAL CHARACTERISTICS

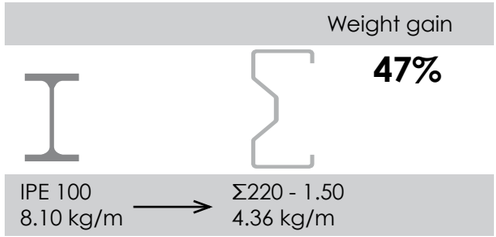
Type	Thickness (mm)	Weight (kg)	Iy (cm⁴)	Iy/Vy (cm³)	Iz (cm⁴)	Iz / Vz (cm³)
Σ160	1.50	3.65	177	22.3	13.7	3.75
	2.00	4.87	234	29.2	18.0	4.93
	2.50	6.08	289	36.1	22.0	6.03
Σ180	1.50	3.88	235	26.1	14.1	3.86
	2.00	5.18	309	34.3	18.9	5.17
	2.50	6.48	381	42.3	23.1	6.30
Σ200	1.50	4.12	309	31.2	14.6	4.05
	2.00	5.49	406	41.0	19.3	5.39
	2.50	6.87	500	50.5	23.7	6.57
Σ220	1.50	4.36	407	37.0	15.3	4.19
	2.00	5.81	530	48.2	19.9	5.45
	2.50	7.26	680	61.8	23.8	6.90

The best ratio weight / mechanical strength
The double return increases the rigidity of the profile and improves the mechanical characteristics

AN ECONOMICAL SOLUTION

The Σ-profiles can be used as purlins of roof and ribbands of bardage. In comparaison with hot-rolled profiles, the use of the purlins or ribbands in Σ-profile allows a weight reduction until 50 %.

The minimized weight allows an easy manipulation.



	Σ - Profile	I - Profile
Weight (daN/m²)	3,50 to 7,50	> 7
Reache by profile max (m)	12 m	> 10 m
Finishing	galvanized	to treat
Fixation	bolted	soldered and bolted
Production	Custom made and perforated	to saw and perforate
Length (m)	12 m and more	12 m
Handling	light	heavy

ADVANTAGES

- The Σ- profiles are made from strip of galvanized steel under heat and fit for forming. They are produced by cold forming on a profiling modern line with high quality steels.
- We propose a complete range of Σ-profiles for reaches going to 12 meters. These profiles adapt to all the constructions.
- Our wide range of Σ-profiles allows the manufacturers to realize projects in a fast and economic way.
- The volume of the parcel and transport costs are reduced by the shape and the fitting of the Σ-profiles which results in a big ease and speed in the unloading and the assembly on construction site.

BOARD OF EQUIVALENCE IPE AND Σ-PROFILE

Type IPE	Weight (kg/ml)	Σ purlin	Thickness (mm)	Weight (Kg/ml)	WEIGHT GAIN
IPE80	6.00	Σ160	1.50	3.65	**39%**
IPE100	8.10	Σ160	2.50	6.08	**25%**
		Σ180	2.00	5.18	**36%**
		Σ220	1.50	4.36	**47%**
IPE120	10.40	Σ220	2.50	7.26	**30%**

OPTIMIZED STRUCTURES IN GALVANIZED STEEL

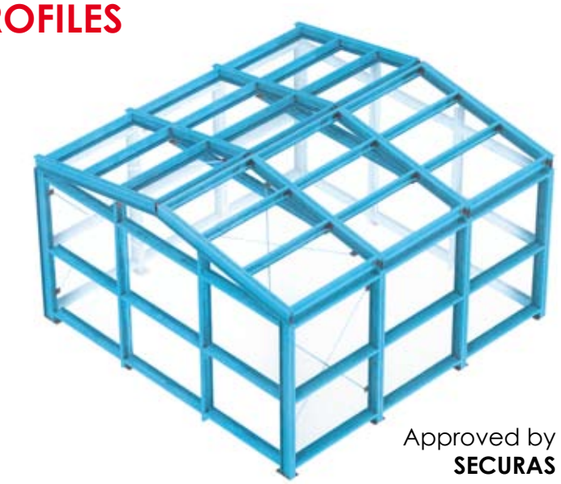
OPTIMIZED STRUCTURE IN Σ-PROFILES

DESCRIPTION

The steel structures completly galvanized are made from Σ-profiles.

Components are light and easy to assemble which allow to build optimized structures.

The construction of offices, houses, bases of lives, farm buildings can so be made in a fast and effective way.



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SECURAS

STANDARD EXECUTION

WIDTH	HEIGHT	LENGTH			
8 m 12 m	2,5 m 3 m 4 m	12 m	18 m	24 m	30 m
		36 m	42 m	48 m	54 m
		60 m	66 m	72 m	78 m
		84 m	90 m	96 m	102 m

ADVANTAGES

- Completely galvanized structure,
- Light construction, which excludes the difficult assemblies,
- Free choice of widths and lengths,
- Fast assembly, thanks to a set to be screwed,
- The composition of the profile offers excellent possibilities for the electric and sanitary installation,
- Free volume with excellent assets for the finish inside.

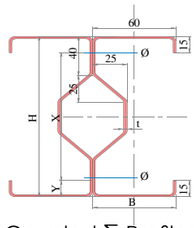
COMPOSITION OF COMPLETE STRUCTURE

- Galvanized steel structure consisted of Σ-profiles which type is determined by the width of the building :

  - Width until 8 m : Σ 200
  - Width until 12 m : Σ 220

The structure consists of :
- Posts and farms constituted by 2 coupled Σ-profiles
- Purlins of roof and ribbands of bardage in Σ- profiles

Accessories :
- Parts of welded mechanic ties
- Bolts of HR galvanized fixation
- Cables with carrier straps for the structures of superior width in 10m.
- Custom-made opening



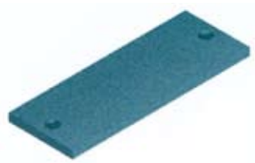
Coupled Σ-Profiles

Σ-STRUCTURE ASSEMBLY PIECES

ASSEMBLY PIECES

1 Foot of external post

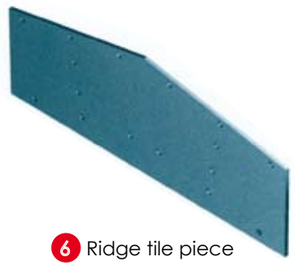
2 Foot of commom post



3 Distance holder

4 Angle

5 L-piece for gable ribband



6 Ridge tile piece

7 L-piece for wind bracing

8 L-piece

9 L-piece of gable post

WIND BRACING

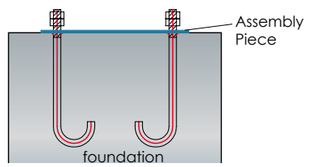
The stability of the structure is assured by wind bracings, galvanized steel cables 6 mm in diameter.

Cables avoid the arrow according to the slope of the building in roof, in smoothing.

FIXATION

Fixation of the structure on the foundation by :

Anchor bolts



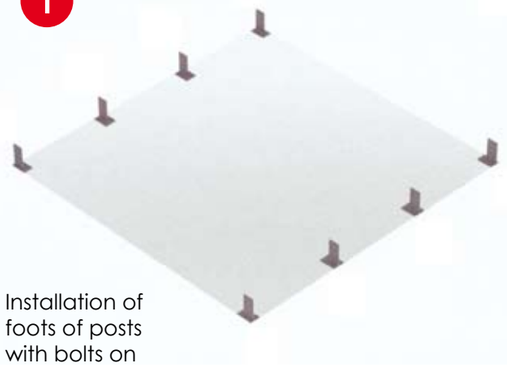
Studs

Assembly bolts

Σ-STRUCTURE ASSEMBLY

A RAPID ASSEMBLY ON 6 STEPS

1

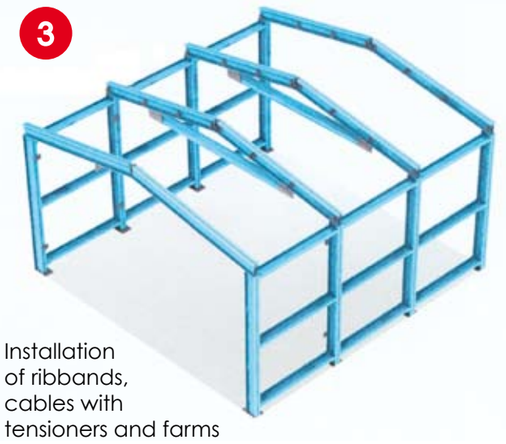


Installation of foots of posts with bolts on foundation.

2

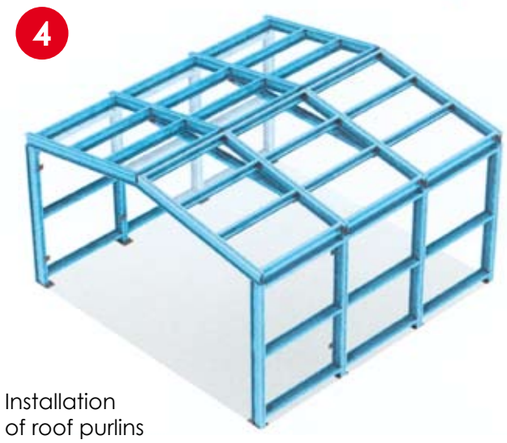
Installation of posts

3



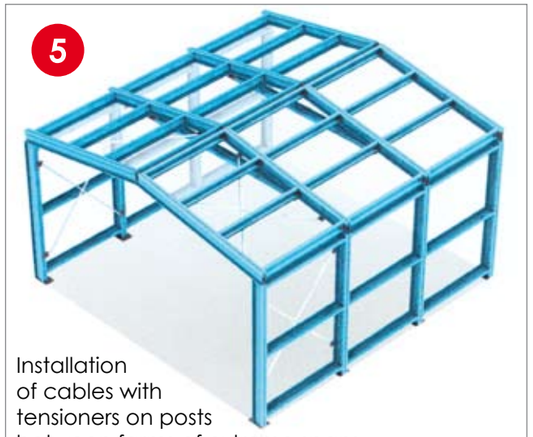
Installation of ribbands, cables with tensioners and farms

4



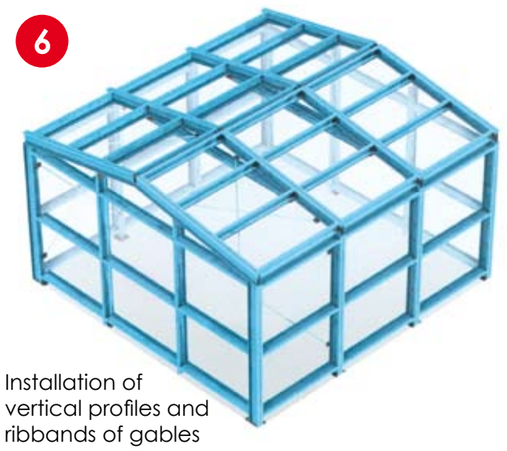
Installation of roof purlins

5



Installation of cables with tensioners on posts between farms of extreme spans

6



Installation of vertical profiles and ribbands of gables

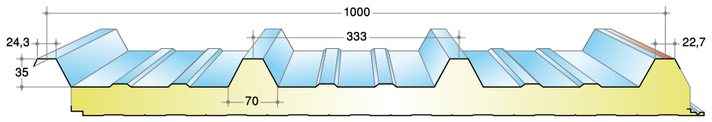
COMPLETE BUILDING KIT

COVERING AND CLADDING TYPES

- Sandwich panels (consult our range)
- Profile cladding sheets (consult our NERVESCO range)

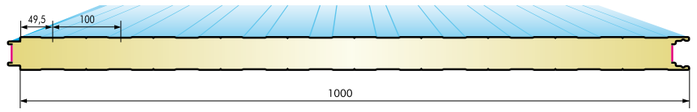
THC Type

Panel thickness ranged from 40 mm to 80 mm



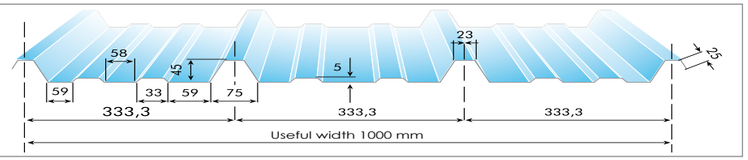
THP Type

Panel thickness ranged from 40 mm to 80 mm



Nervesco Type

Sheet thickness ranged from 0.40 mm to 1.20 mm



COMPLETE BUILDING KIT

The complete building kit consists of :

- Steel complete structure (purlins, ribbands, farms, posts and all accessories)
- Cables with tensioners to stabilize the steel structure and avoid the deformation
- Coating of covering and cladding in sandwich panels THC and THP types.
- Notched ridge tiles, under ridge tiles
- Finishes (lips, angles,...)
- Opening (service doors, sliding door, sectional doors, metal curtains,...)
- Accessories and bolts.

Consult us.

Z - structures with sandwich panels coating

PURLINS OF LONG REACHES

The projects of buildings can be optimized by using of more long-range of purlins. We propose a range of Z and Σ-profiles used in buildings with reaches going until 12 m for optimized and economic solutions :

- less intermediate posts in buildings,
- less assembly.

REALISATIONS

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