

# HOT-DIP GALVANIZED PRODUCTS

THE BASE MATERIAL OF HOT-DIP GALVANIZING IS COLD ROLLED WIDE COIL. METAL COATING IS PERFORMED IN COURSE OF CONTINUOUS HOT-DIP GALVANIZING SENDZIMIR PROCESS. CONSTRUCTION ELEMENTS IN OUR SUPPLY ARE MADE OF GALVANIZED OR ORGANIC COATED GALVANIZED BASE MATERIAL, BY MEANS OF COLD FORMING






**LIBERTY**

## HOT-DIP GALVANIZED PRODUCTS

### MAIN PARAMETERS

#### COATED FLAT PRODUCTS MANUFACTURED BY MEANS OF CONTINUOUS HOT-DIP GALVANIZING PROCESS

	COIL	SLIT STRIP	SHEET
			
Thickness; h (mm)	0.35 – 1.50	0.35 – 1.50	0.35 – 1.50
Width; b (mm)	800 – 1 500*	min. 19 mm	800 – 1 500*
Length; l (mm)			900 – 3 000
Inside diameter (mm)	508 ± 20 or 610 ± 20	508 ± 20 or 610 ± 20	
Coil weight (t)	2.5** – 15	***	
Bundle weight (t)			max. 3

\* In case of sheet thickness below 0.50 mm the width is subject to negotiation.

\*\* Coil weight under 5 tons can be ordered only based on a separate agreement.

\*\*\* The weight of the slit coil depends on the width, thickness, diameters, required weight specification and the weight of the mother coil

### CONSTRUCTION AND ADDITIONAL PRODUCTS

Trapezoid sheets in lengths from 1 000 to 19 000 mm

Bent-off elements in max. 6 000 mm length

### PRODUCT GROUPS

For our products the latest issued standards specifications shall apply. Mechanical properties and chemical compositions in the tables are valid taking into account the supplementary specifications of the standards indicated.

Typical applications: For field of use with protection from enhanced environmental impacts (e.g. ventilation/air conditioning, building profiles, drainage systems)

### LOW CARBON STEEL FOR COLD FORMING

#### Commercial sheet dimensions

EN 10346	$R_e$ (MPa)	$R_m$ (MPa)	$A_{80}$ min.* (%)
DX51D	—	270 – 500	22
DX52D	max. 360 **	270 – 420	26

The mechanical properties are tested in the transverse direction.

\* Decreased minimum elongation values apply for product thickness:

0.50 mm < h ≤ 0.70 mm (minus 2 units),

0.35 mm < h ≤ 0.50 mm (minus 4 units) and h ≤ 0.35 mm (minus 7 units).

\*\* For surface quality „A“, the upper value for yield strength  $R_e$  is 360 MPa.

## HOT-DIP GALVANIZED PRODUCTS

### STEELS FOR CONSTRUCTION

EN 10346	R <sub>p0.2</sub> min. (MPa)	R <sub>m</sub> min. (MPa)	A <sub>80</sub> min. * (%)
S220GD	220	300	20
S250GD	250	330	19
S280GD	280	360	18
S320GD	320	390	17
S350GD	350	420	16

The mechanical properties are tested in the longitudinal direction.

\* Decreased minimum elongation values apply for product thickness:

0.50 mm < h ≤ 0.70 mm (minus 2 units),

0.35 mm < h ≤ 0.50 mm (minus 4 units) and h ≤ 0.35 mm (minus 7 units).

### COATINGS AND SURFACE TREATMENTS

The products are supplied with a zinc (Z) coating (Zn > 99%).

Coating designation	Minimum total coating mass, both surfaces (g/m <sup>2</sup> )	Theoretical guidance values for coating thickness per surface in the single spot test Typical value (µm)*	Coating finish	Surface quality	Surface treatment (surface protection)***
Z100**	100	7	normal spangle (N)	as coated surface (A)	chemically passivated (C)****
Z150	150	10			
Z200	200	14			
Z250	250	18			
Z275	275	20			

\* Indicative theoretical values.

\*\* Not available below 0.4 mm thickness.

\*\*\* Without chemical passivation we do not take the responsibility of arising corrosion problems!

\*\*\*\* Surface treatment is in accordance with RoHS directive (2011/65/EU) and do not contain Chromium VI (Cr).

No claims will be accepted for white rust resulting from improper storage and transport!

## OTHER TECHNICAL DATA

Coil outside diameter - depending on the coil weight

Coil weight (t)	Available coil outside diameter, mm (informative data) in case of an inside diameter of 508 mm				
	Width; b (mm)				
	800	1 000	1 100	1 250	1 500
2.5	874	814	791	763	727
3.0	931	863	837	804	763
3.5	983	908	880	844	798
4.0	1 034	952	921	881	831
4.5	1 082	994	960	917	863
5.0	1 127	1 034	997	952	893
5.5	1 171	1 072	1 034	985	923
6.0	1 214	1 109	1 069	1 018	952
6.5	1 255	1 145	1 103	1 049	980
7.0	1 295	1 180	1 136	1 080	1 007
7.5	1 333	1 214	1 168	1 109	1 034
8.0	1 371	1 247	1 199	1 138	1 059
8.5	1 407	1 279	1 229	1 166	1 085
9.0	1 443	1 310	1 260	1 190	1 109
9.5	1 477	1 341	1 288	1 221	1 133
10.0	1 511	1 371	1 316	1 247	1 157
10.5	1 544	1 400	1 344	1 273	1 180
11.0	1 577	1 429	1 371	1 298	1 203
11.5	1 609	1 457	1 397	1 323	1 225
12.0	—	1 484	1 423	1 347	1 247
12.5	—	1 511	1 449	1 371	1 268
13.0	—	1 538	1 474	1 394	1 289
13.5	—	1 565	1 499	1 417	1 310
14.0	—	1 590	1 523	1 440	1 331
14.5	—	1 615	1 547	1 462	1 351
15.0	—	—	1 571	1 484	1 371



## HOT-DIP GALVANIZED PRODUCTS

Specific weight per running meter in the case of 275 g/m<sup>2</sup> coating

Thickness; h (mm)	Specific weight kg/m (informative data)		
	Width; b (mm)		
	1000	1250	1500
0.35	2.7	3.4	—
0.40	3.1	3.9	—
0.50	3.9	4.9	5.9
0.55	4.3	5.4	6.5
0.60	4.7	5.9	7.1
0.70	5.5	6.9	8.2
0.75	5.9	7.4	8.8
0.80	6.3	7.9	9.4
0.90	7.1	8.8	10.6
1.00	7.9	9.8	11.8
1.10	8.6	10.8	13.0
1.20	9.4	11.8	14.1
1.30	10.2	12.8	15.3
1.40	11.0	13.7	16.5
1.50	11.8	14.7	17.7

## CONSTRUCTION PRODUCTS

We manufacture construction products by means of roller-type forming of hot-dip galvanized strips produced by us as well as of different organic-coated steel strips. The construction elements in our supply can be applied excellently at new constructions and at modernization of old buildings.

### Base material

Unless otherwise agreed, the steel grade used is S280GD for all types in accordance with EN 10346.

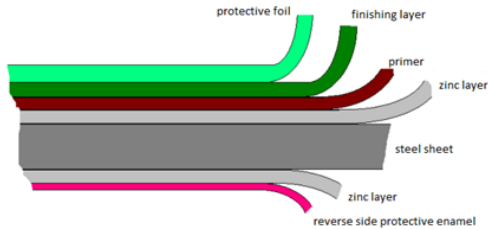
### Coating

- for types of galvanized trapezoid sheets (TR)  
Z275 N-A-C for outdoor and indoor application
- for types of organic-coated trapezoid sheets (TR)  
Z275 + organic-coated for outdoor and indoor application

Organic-coatings according to EN 10169 are recommended for outdoor and indoor applications with different loads.

## HOT-DIP GALVANIZED PRODUCTS

### Composition of our organic-coated products



One or more layers of organic-coating (lacquer) of different quality and thickness on hot-dip galvanized steel sheet with or without strippable protective foil.

The face and back sides of the products are usually of different construction (organic-coating layer-thickness). Colour choice according to RAL colour register. According to the actual stock and according to agreement.

### Order data

When choosing the material among others usage and place (outdoor indoor) of application environmental conditions and loads have to be taken into consideration.

The characteristics of the required coating (colour coating type layer thickness) have to be given for both sheet surfaces.

### Product and dimension range

Type mark-channel number	Galvanized organic-coated					
	Nominal thickness (mm)					
	0.50	0.63	0.75	0.88	1.00	1.25
HTR 35/207	X	X	X	X	X	
TR 35/207-4	X	X	X	X	X	
TR 35/207-5	X	X	X			
TR 40/183-4	X*	X	X	X	X	
TR 40/183-5	X*	X	X			
TR 135/310-2			X*	X*	X*	X*
TR 135/310-3			X	X	X	X

Other thickness can be ordered upon separate agreement and conditions.

\*Can be ordered only on the basis of a separate agreement

### Construction products for roof and sidewall cladding

HTR 35/207	
Thickness: 0.50 – 1.00 mm Assembly width: 828 mm Min. length: 400 mm Max. length: 14 000 mm	
TR 35/207-4	
Thickness: 0.50 – 1.00 mm Assembly width: 828 mm Min. length: 400 mm Max. length: 14 000 mm	

## HOT-DIP GALVANIZED PRODUCTS

<b>TR 35/207-5</b>	
Thickness: 0.50 – 0.75 mm Assembly width: 1035 mm Min. length: 400 mm Max. length: 14 000 mm	
<b>TR 40/183-4</b>	
Thickness: 0.50 – 1.00 mm Assembly width: 732 mm Min. length: 1 900 mm Max. length: 14 000 mm* Can be applied also as permanent form work and in self-supporting construction.	
<b>TR 40/183-5</b>	
Thickness: 0.50 – 0.75 mm Assembly width: 915 mm Min. length: 1 900 mm Max. length: 14 000 mm*	
<b>TR 135/310-2*</b>	
Thickness: 0.75 – 1.25 mm Assembly width: 620 mm Min. length: 1 000 mm Max. length: 19 000 mm* Can be applied also as permanent form work and in self-supporting construction.	
<b>TR 135/310-3</b>	
Thickness: 0.75 – 1.25 mm Assembly width: 620 mm Min. length: 1 000 mm Max. length: 19 000 mm* Can be applied also as permanent form work and in self-supporting construction.	

\*Can be ordered only based on a separate agreement.

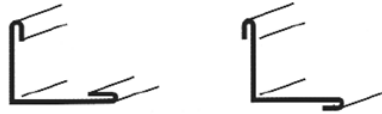

## ADDITIONAL PRODUCTS

### BENT-OFF ELEMENTS

Base material: hot-dip galvanized or organic-coated steel sheets.  
 The figures below show the most commonly produced bent-off elements.

<b>Ridge elements</b>	
Length: max. 6 000 mm Thickness: 0.50-1.00 mm	
<b>Weather bars cornice plates</b>	
Length: max. 6 000 mm Thickness: 0.50-1.00 mm	

## HOT-DIP GALVANIZED PRODUCTS

External and internal corner covering elements	
Length: max. 6 000 mm Thickness: 0.50-1.00 mm	
"Z" element	
Length: max. 6 000 mm Thickness: 0.5-1.00 mm	

Bent-off elements with other dimensions and shape requirements can be ordered based on a separate agreement!

## CONNECTING ELEMENTS AND AUXILIARIES

### Fixing elements

Fixing elements can be used in the case of both wooden and metal purlins. Both roof profiles (B side) and sidewall profiles (A side) are fixed in the channel valley. Bearing solution can also be chosen for fixing. According to practical experience about 6 pcs/m<sup>2</sup> fixing elements already provide fixing with the required safety.

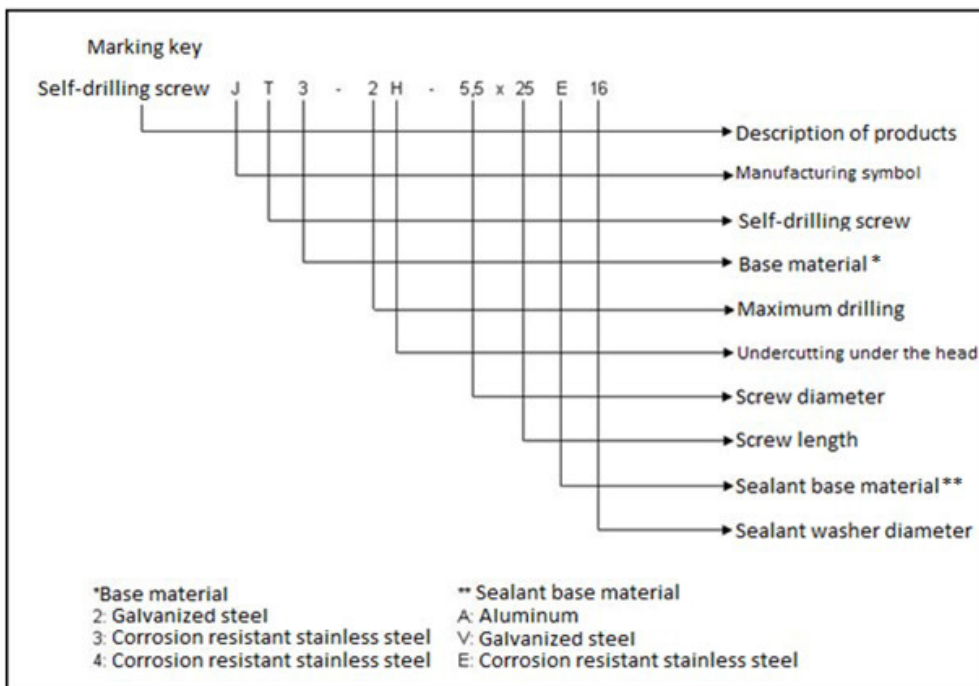
According to the application we can provide the following bolt types for connection of:

- metal-metal
- metal-wood

fastening screws and tie bolts for joining the trapezoidal sheets.

All types of self-drilling screws are equipped with sealing washer. Watertight sealing of self-drilling and self-tapping screws prevents moisture (vapor rainwater snow etc.) from infiltration at the fixing site.

### Screw types





## HOT-DIP GALVANIZED PRODUCTS

### Sealing Tapes

Tapes are used for the longitudinal and transversal splicing of trapezoid sheets and bent-off elements their usage needed in the case of slope angles below 15°.

#### Neoprene:

Single-sided adhesive surface; compressible suitable also for the elimination of heat-bridges.

#### Terrostate:

Double-sided adhesive surface the insulating material is rubber.

### Profile fillers

Profile fillers type has the same design as the profile of trapezoid sheets TR. They are used for both A and B side filling. They provide shape-retaining weatherproof insulation at the connection of trapezoid and flat sheets (e.g. ridge) against powder snow and pollution from outside.

### Lantern

A lantern is a light-admitting corrugated sheet bright on both sides and made of polyester resin with glass-fibre reinforcement for sheet types TR35 and TR40.

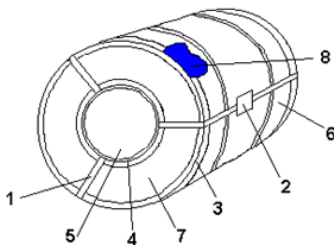
## TOLERANCES

Hot-deep galvanized flat products:  
Construction products

according to EN 10143  
according to EN 14782 and EN 508-1

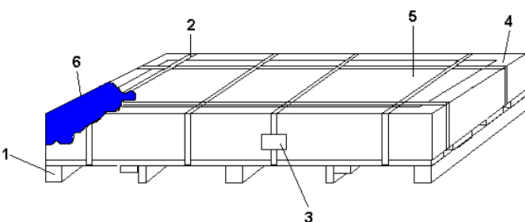
## PACKAGING

### Coil



Packaging material		Type of packaging		
		1	2	3
1	Banding strap	X	X	X
2	Label	X	X	X
3	Outside edge protector	—	X	X
4	Inside edge protector	X	X	X
5	Inner mantle protector	—	—	X
6	Outer mantle protector	—	—	X
7	Side protector	—	—	X
8	Impregnated paper	X	X	X

### Sheet



Packaging material		Type of packaging	
		2	3
1	Wooden pallet	X	X
2	Banding strap	X	X
3	Label	X	X
4	Edge protector	—	X
5	Cover plate	—	X
6	Impregnated paper	X	X

## HOT-DIP GALVANIZED PRODUCTS

### Construction products

The galvanized construction bundles are delivered in two or more places with wood strapping tape depending on their length.

The organic coated construction bundles are delivered in two or more places with wood strapping tape depending on their length.

## I APPROBATED (CERTIFIED) PRODUCTS

### Hot-dip galvanized or hot-dip galvanized with organic coating construction products according to 305/2011 EU-Regulation EN 14782 Self-supporting metal sheet for roofing external cladding and internal lining.

Initial type testing sheets: TR 35/207 HTR 35/207 TR 40/183  
Certified by: ÉMI

### Hot-dip galvanized or hot-dip galvanized with organic coating construction products according to 305/2011 EU-Regulation EN 14782 Self-supporting metal sheet for roofing external cladding and internal lining

Initial type testing sheets: TR 135/310  
Certified by: Dunarolling Dunaí Vasmű Kft.

### Certifications are available on request

The products made by LIBERTY Steel Group in Hungary are always supplied with a Conformity Statement of Producer and agreement shall be reached about the type of statement at the time of placing the order. The available types of statements are included by standard EN 10204.

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