



**LONGITUDINALLY  
PROFILED PLATES  
(LP-PLATES)**

Revision 5, July 2004

**DILLINGER HÜTTE GTS**



Cost-efficiency – a term that defines as no other can, one of the central imperatives of our economic system and the basis of entrepreneurial success.

From the very start of its existence, Dillinger Hütte GTS has orientated itself around supplying its customers with innovative heavy plate products that will assist them in achieving this aim.

The longitudinally profiled plates shown here open the way to lightweight construction methods for structural engineering. These tailor-made plate products permit a reduction in fabrication costs for typical heavy structural designs, such as steel and composite bridges. The slender structures are equally convincing on architectural criteria.

This brochure provides a short overview of the Dillinger Hütte GTS range of longitudinally profiled plates. Our Marketing Service will be pleased to answer on a personal basis any further questions you may have.



The top chord of the Mosel bridge at Schengen, Luxembourg: 1,100 t of S355N LP-Plates in thicknesses up to 140 mm

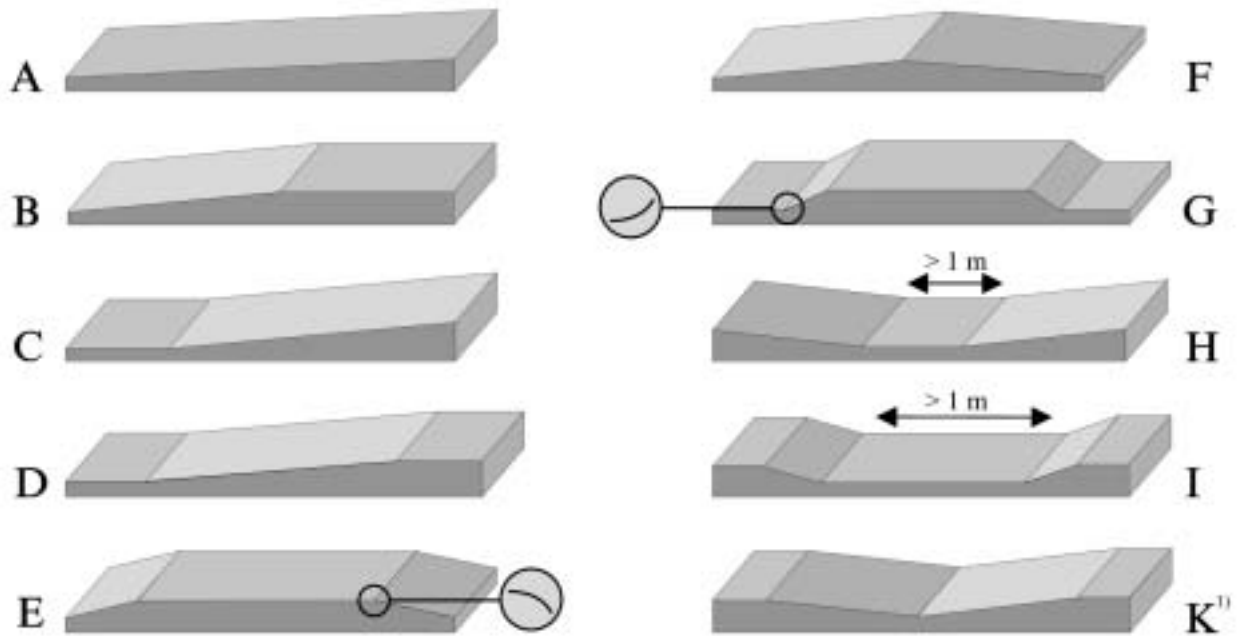


## Longitudinally profiled plates: Basic types

LP-Plates can be supplied in a most diverse range of profile types. The basic types are shown in the illustration below. Other

sectional geometries, which can be created via the addition of approach and/or run out sectors of a constant thickness to the

basic types, are also feasible (see illustration).



<sup>1)</sup> This type can possibly be delivered on request.



## Longitudinally profiled plates: Delivery program

### Steel grade:

Structural steels according to EN 10025 or EN 10113-2

Weather-resistant structural steels according to EN 10155 on request

Other grades possible on request.

### Tolerances:

Conditions on tolerances as stated in EN 10029 apply to LP-Plates. They must be previously agreed with the mill (standard: thickness tolerance class A).

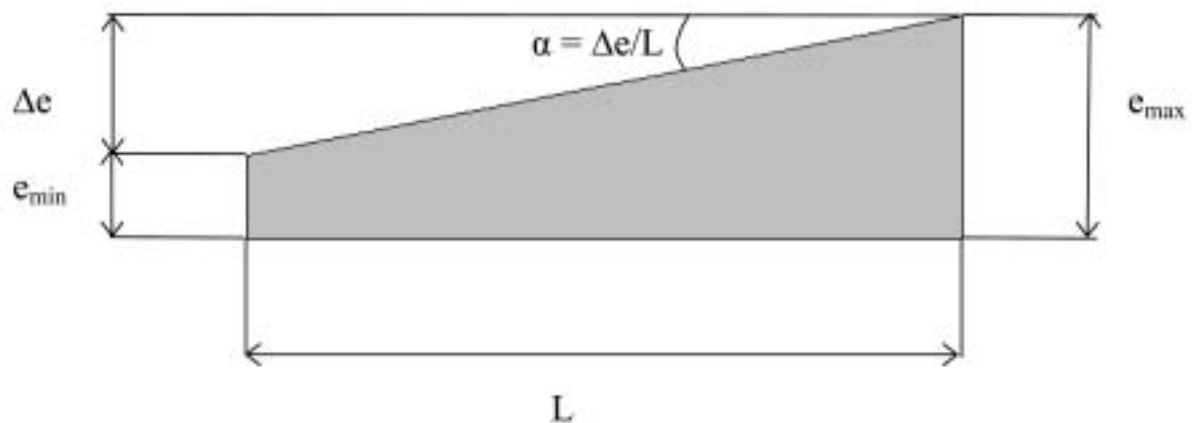
Please note the following:

- The tolerance for the maximum thickness of the plate applies to the whole plate.
- In a few cases, Dillinger Hütte GTS reserves the right to double the positive tolerance. Customers will be informed.

### Delivery state:

As-rolled (AR)

Normalized (N)





## Standard dimensions

The data shown below indicate the standard producible longitudinally profiled plates. Most of

the values are interdependent and can therefore not be combined at will. The actual producibility can

be ascertained by direct enquiry with our mill.

### Length L:

$L_{\min} \geq 4,000$  mm  
 $L_{\max} \leq 28,000$  mm

### Width B:

$B_{\min} \geq 1,500$  mm  
 $B_{\max} \leq 4,300$  mm

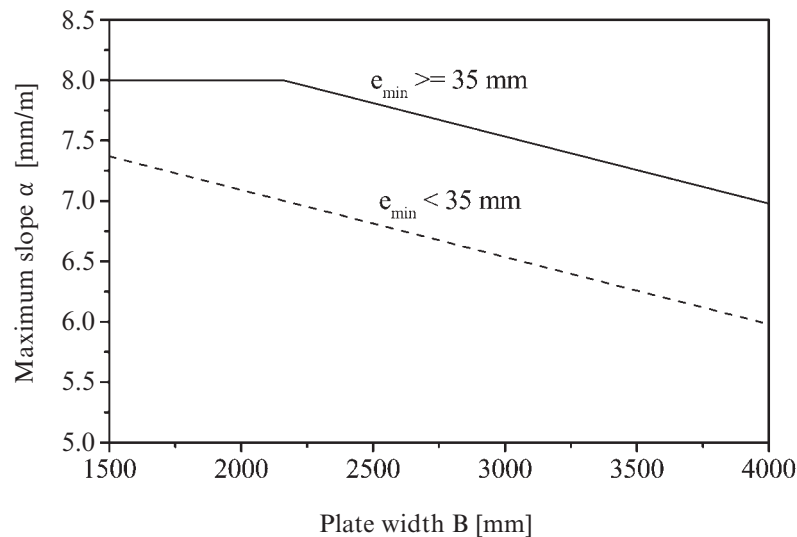
### Plate thickness e:

$e_{\min} \geq 20$  mm  
 $e_{\max} \leq 300$  mm

Smaller widths are possible by ordering an equal number of plates with identical dimensions.

### Gradient $\alpha$ :

$e_{\min} \geq 35$ mm		$e_{\min} < 35$ mm
$B < 2,160$ mm	$\alpha \leq 8$ mm/m	$\alpha \leq 8.2 - B/1,800$ mm/m
$B \geq 2,160$ mm	$\alpha \leq 9.2 - B/1,800$ mm/m	

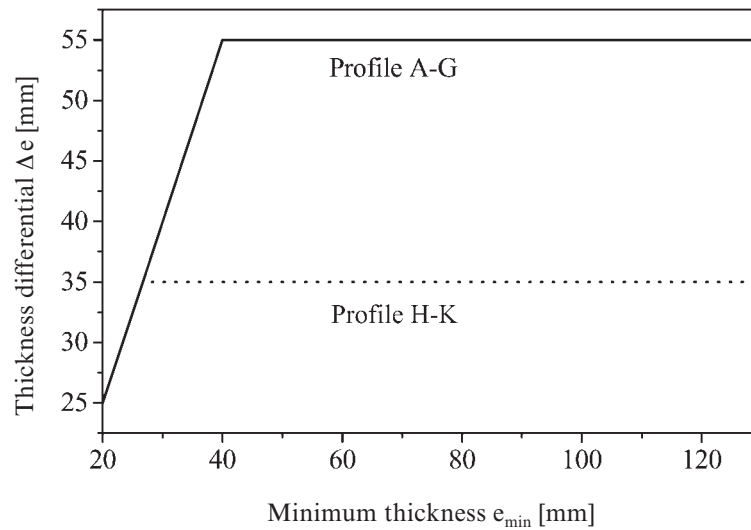




## Standard dimensions

### Thickness differential $\Delta e$ :

profile types A-G		profile types H-K	
$e_{\min} \geq 40 \text{ mm}$	$\Delta e \leq 55 \text{ mm}$	$e_{\min} \geq 26.7 \text{ mm}$	$\Delta e \leq 35 \text{ mm}$
$e_{\min} < 40 \text{ mm}$	$\Delta e \leq -5 + 1.5 \cdot e_{\min}$	$e_{\min} < 26.7 \text{ mm}$	$\Delta e \leq -5 + 1.5 \cdot e_{\min}$



### Plate weight:

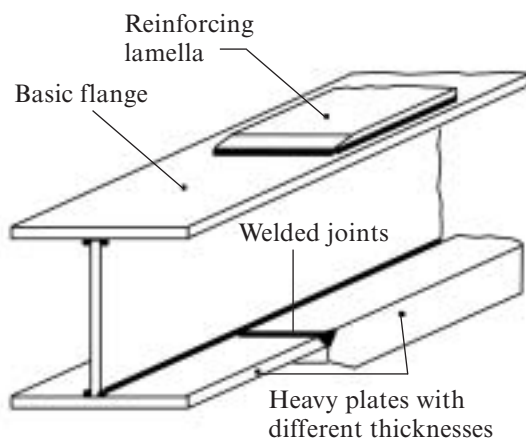
$m \leq 36 \text{ t}$

Other dimensions or profiles are possible by agreement.

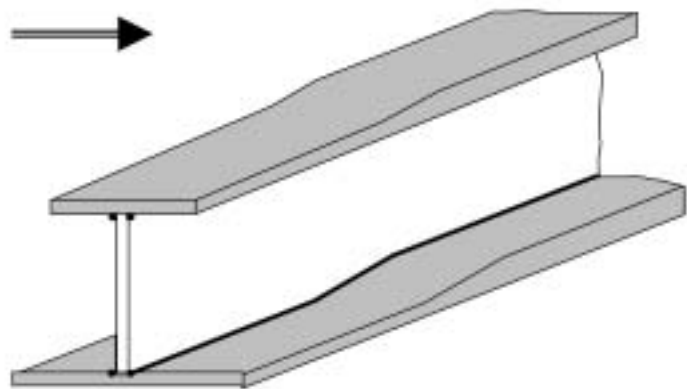


## Concept of welded plate girders Time and cost savings during fabrication

Conventional construction using regular plates



Proposed solution: LP-Plates



### An example: Bridge Vlaktebrug, Zuid-Beveland, Netherlands

	Alternative in S355J2G3, standard plate	Alternative in S355J2G3, longitudinally profiled plate
Weight:	99.6 t	81.1 t
Cost:		
Steel purchasing costs	47,800 €	45,000 €
Welding costs	9,400 €	7,000 €
Of which:		
• mechanical preparation	2,200 €	1,300 €
• positioning	500 €	400 €
• preheating	1,600 €	1,300 €
• welding	5,100 €	4,000 €
<b>Total:</b>	<b>57,200 €</b>	<b>52,000 €</b>

Source: B.J.W. Wensveen, Tiepassing van LP-platen in de bruggenbouw, Degree Thesis, Technical University of Delft, 2000



## The advantages of LP-Plates

- Weight savings
- Fabrication-time and cost savings
- Lower maintenance costs
- Avoidance of expensive bolted joints
- Low transport and installation weights
- Improvement of structural safety, particularly under fatigue conditions, thanks to:
  - Welds in less load-stressed areas
  - Reduction of welded joints
- Optimized matching of steel cross sections to actual stresses

Bridge across the valley of the river Werra, a feature of the „Thüringer Wald“ (Thuringian Forest) motorway project:  
2,100 t S355J2G3 LP-Plates

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