

Road Safety Barriers for Civil Engineering structure





Description

New Product range DOLRE

- $D_{ispositifs \ pour \ Ouvrage \ d'art \ avec \ Limiteur \ et \ Répartiteur \ d' Efforts$
- (= Device for civil engineering structures with limiter and efforts dispatcher)

Design road safety barriers for bridges







Description

Description : Products DOLRE

- Post = Welded assembly from steel sheets
- Tubes with 100 and 121 mm diametre





Description



- No visible fasteners on the front side
- Special design for the posts (« Light » Posts)



Containment level







Containment level





Innovation

- Fuse plate
 - Innovative fuse disconnection at the plates which prevents the permanent damages on the anchorages during an impact.
 - Rigids tubes which distribute the forces on a long distance.





DESAMI Reduction of transmitted forces

• Determination of transmitted forces with push-out test (according to EN 1317)





DESAM

Reduction of transmitted forces

• With the same performances, large reduction of transmitted efforts to the bridge



DESAMI

Reduction of transmitted forces

With the same performances, large reduction of transmitted forces

1. New bridges

Reduced need for reinforcement by opting for the DOLRE solution

50 to 65% gain in steel section depending on the corbelling



Corbelling : 1m



DESAMI

Study case 1

- Case study 1 on existing bridge in Belgium
- 2 choices
 - BPL 80 (M = 45 kN.m, V = 180 kN)
 - DOLRE (M = 14 kN.m, V = 43 kN)















1. Push-test in situ









Kerb

• Non-anchored kerb (LNA) reinforcement



- Longitudinal
 - ➢ 5 rods Ø16 (upper)
 - 4 rods Ø10 (lower)
- Transversal = 3 frames Ø12/ml

Reinforcement = 13,9 kg/ml











• Test length : min. 24 m

TB51	60 m	24 m	Δ
DD	0,8 m	1,0 m	+ 10 cm
ww	1,0 m (W3)	1,2 m (W4)	+ 10 cm \rightarrow W+1
VI	0,9 m (VI3)	1,0 m (VI3)	/









1. Transition to steel guardrail for TL2 & TL4





Accessories

Guardrail function for TL2 & TL4 (according to XP P98-405) 1. (Available for TL2 and TL4) 0_0000 **Cross-bar** 12X Fencing H2 02 (01) Fencing N2



Accessories

1. Architecural fencing (GCA)







Powder coating

Powder coating in many colors







Fast installation

1. Timeliness = pré-assembly of modules





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Couvin (Be), N2 (2018)







Petit-Waret (Be), N2 (2018)









Stavelot (Be), N2 (2018)





Saint Jean de Luz (Fr), H2 (2018)





Sesselich (Be), H2 LNA (2018)





Rungis (Fr), H2 LNA (2018-2019)







RCEA, France, H2 : in progress

We have to install DOLRE on 55 existing bridges with level H2.

Use of DOLRE avoid the use of costly reinforcements.





Choice of DOLRE

Selection criteria of DOLRE

 \checkmark For cyclist protection, the overall height from the concrete support \ge 1.20 m

- J Limited width of the product (47cm)
- J No visible fasteners on the front side
- $_{
 m J}$ To avoid reinforcement, transmitted forces per post are limited to M=14 kNm, V=43 kN*

J For maintenance, the fuse are in the post (not in the achorage)

Pedestrain parapet properties:

√ Handrail height : 1.2m

 \checkmark Fencing to avoid a Ø15cm cylinder to come trough

✓ CE certification of the system (guardrail + fencing)



Selection criteria of DOLRE

Bridge structure	Neuf	Existant
Aesthetic	\star	★☆☆
Width	\star	★☆☆
Kerb reinforcement	\star	$\star \star \star$
Non-anchored kerb		
Water protection	\star	$\star \star$
Work schedule	/	$\star \star$
Reduction of transmitted forces	/	$\star \star \star$





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