

DOLRE LOW STRESS BRIDGE PARAPETS

**OUTSTANDING DESIGN
LESS EFFORT, LESS REINFORCEMENT
ADAPTABLE TO YOUR NEEDS
IDEAL FOR BRIDGE UPGRADES**



DESAMI

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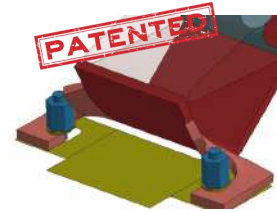
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Why DESAMI?



The perfect solution for bridges

Thanks to its innovative fuse disconnection technology and the rigidity of its longitudinal elements, DOLRE transmits low forces to the structure.



One of the lowest force transition in the market

Meaning in existing bridges the possibility of avoid reinforcements and in new bridges up to 60% in the reinforcements vs most other solutions in the market



Reduction in working times

Reduction of disruption times and investments.



No piercing option

Non-anchored kerb model doesn't pierce the concrete base meaning there is no risk damaging critical water protection or pre-stressed steel cables. Lowering even more the transition of forces.



Aesthetical solution and available customization

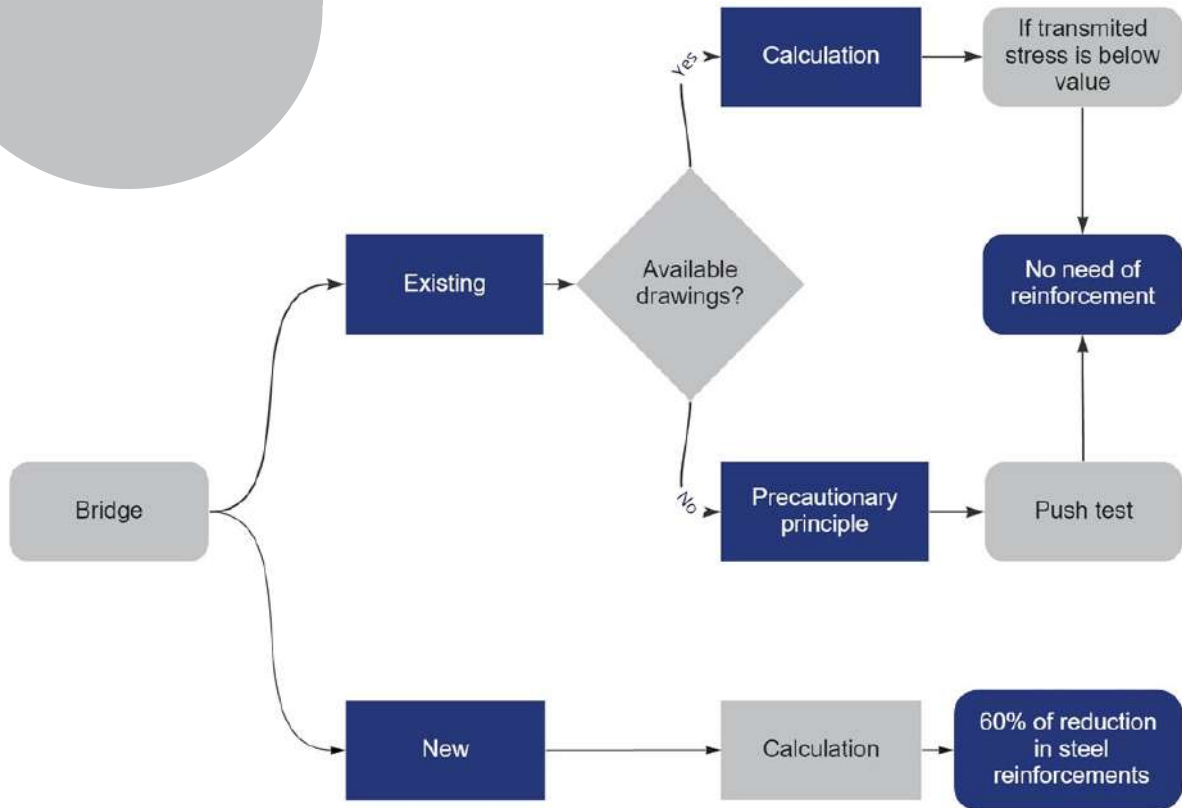
Very aesthetical solution.

Multiple transitions available to conventional guardrails

Wide range of accessories.

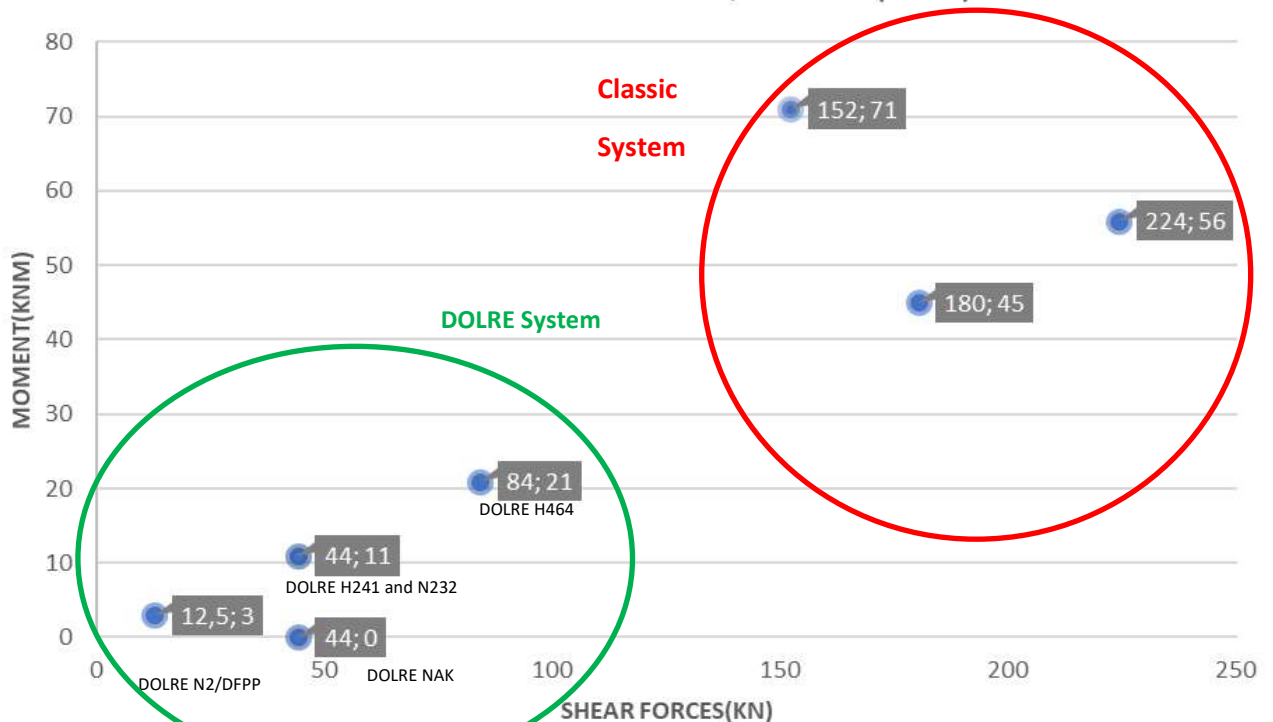
Case of study

1. Design process

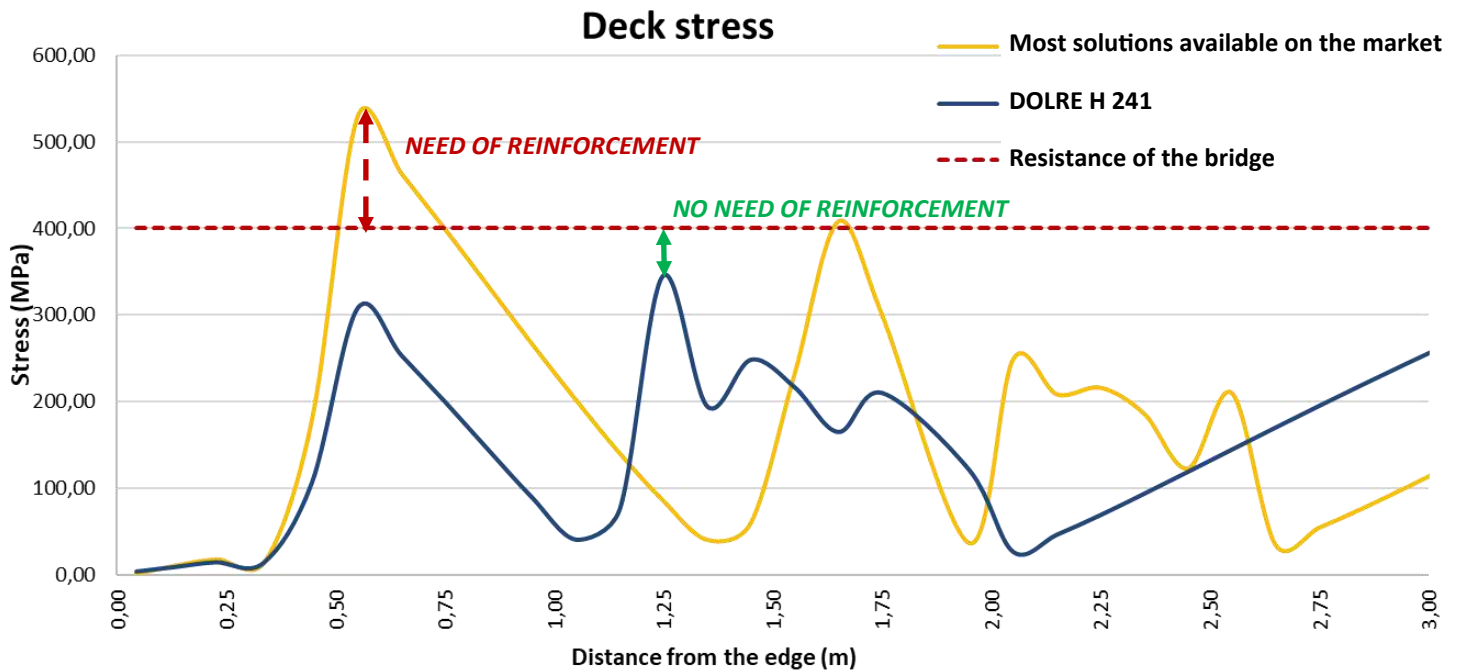


2. Choice of low stress system

TRANSMITTED FORCES/POLES(ULS)



3. Example of calculation



4. Installation



BEFORE



AFTER

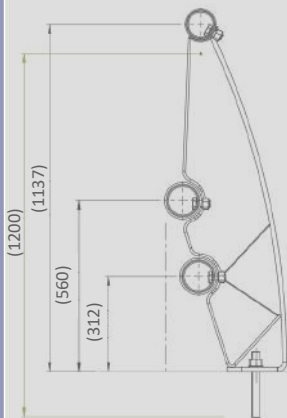
Low stress = reduction of financial investments on the bridge

DOLRE N232

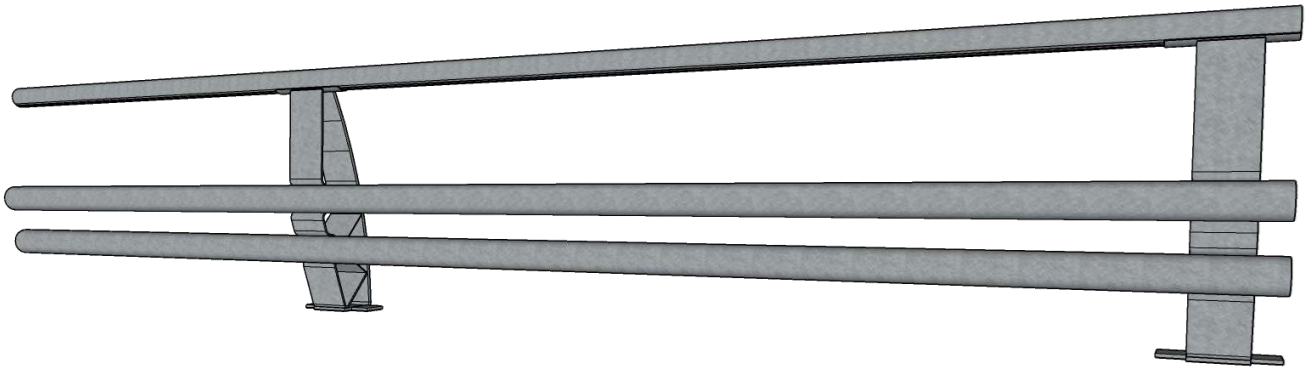
N2 ACCORDING EN1317

Containment Level	N1			N2	H1	H2	H3	H4a	H4b
Working width(W)	W8	W7	W6	W5		W4	W3	W2	W1
Vehicle Intrusion (VI)	VI8	VI7	VI6	VI5		VI4	VI3	VI2	VI1
Acceleration Severity index (ASI)	ASI A			ASI B			ASI C		

The additional features are:



- Distance between poles = 6m
- To ensure the pedestrian function, the overall height in relation to the concrete support = 1,20 m
- To limit the influence on the structure, the space requirement between front and rear post face = 40 cm
- For aesthetic reasons , the connections between the longitudinal elements are not visible on the 180° front panel
- In order to limit the number of sealing holes, the average number of anchors per meter of device = 0.33 pieces/m
- To limit or even avoid reinforcements, the forces transmitted by post are $V=44kN$; $M=11kNm$



Transitions level of validation			
	2 waves beam	3 waves beam	Concrete
Real crash test			
Numerical simulation	x		
Design		x	x



Fuse system allows the reuse of anchors after an impact

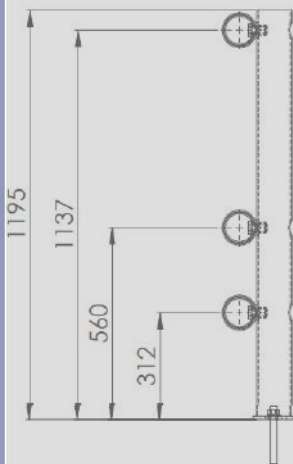


Unique design for a device with aesthetical guardrail

DOLRE N246/DFPP

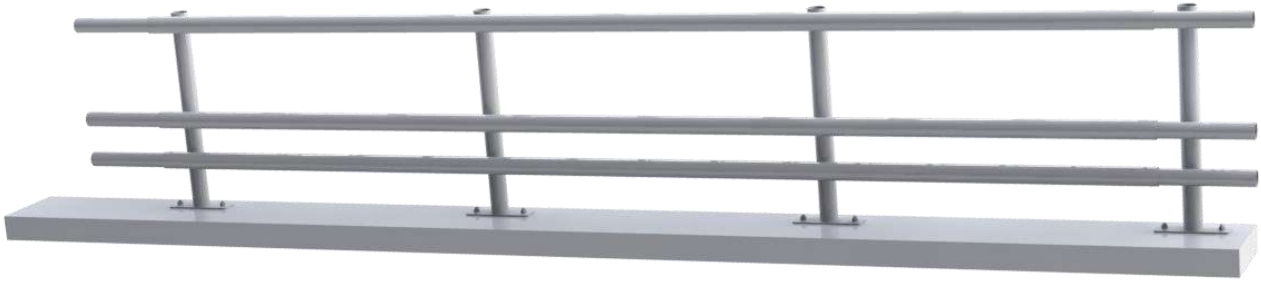
N2 ACCORDING EN1317

Containment Level	N1			N2	H1	H2	H3	H4a	H4b
Working width(W)	W8	W7	W6	W5		W4	W3	W2	W1
Vehicle Intrusion (VI)	VI8	VI7	VI6	VI5		VI4	VI3	VI2	VI1
Acceleration Severity index (ASI)	ASI A			ASI B			ASI C		



The additional features are:

- Distance between poles = 2m
- To ensure the guardrail function, the overall height in relation to the concrete support = 1,20 m
- To limit the influence on the structure, the space requirement between front and rear post face = 20 cm
- Doble face pedestrian protection (DFPP).
- In order to limit the number of sealing holes, the average number of anchors per meter of device = 1 piece/m
- To limit or even avoid reinforcements, the forces transmitted by post are $V=12.5kN$; $M=3.1kNm$



Transitions level of validation			
	2 waves beam	3 waves beam	Concrete
Real crash test			
Numerical simulation	x		
Design		x	x



Doble face pedestrian protection

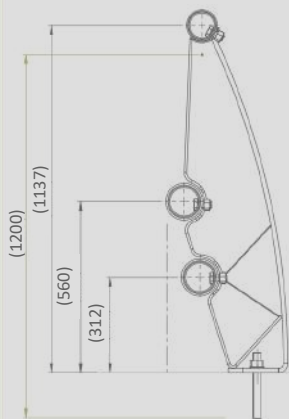
Adaptable to your needs

DOLRE H241

H2 ACCORDING EN1317

Containment Level	N1			N2	H1	H2	H3	H4a	H4b
Working width(W)	W8	W7	W6	W5		W4	W3	W2	W1
Vehicle Intrusion (VI)	VI8	VI7	VI6	VI5		VI4	VI3	VI2	VI1
Acceleration Severity index (ASI)	ASI A			ASI B			ASI C		

The additional features are:



- Distance between poles = 2m
- To ensure the guardrail function, the overall height in relation to the concrete support = 1,20 m
- To limit the influence on the structure, the space requirement between front and rear post face = 40 cm
- For aesthetic reasons , the connections between the longitudinal elements are not visible on the 180° front panel (the fixing points will only be located on the 180° rear panel)
- In order to limit the number of sealing holes, the average number of anchors per meter of device = 1 piece/m
- To limit or even avoid reinforcements, the forces transmitted by post are $V=44kN$; $M=11kNm$



Transitions level of validation			
	2 waves beam	3 waves beam	Concrete
Real crash test			x
Numerical simulation		x	
Design	x		



Reduce cost in maintenance

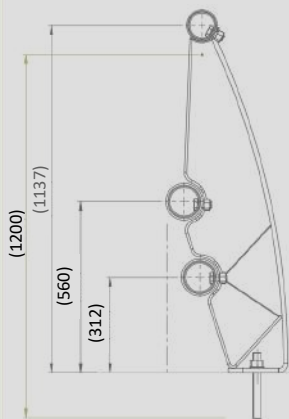
Wide range of accessories and customization

DOLRE H233/NAK

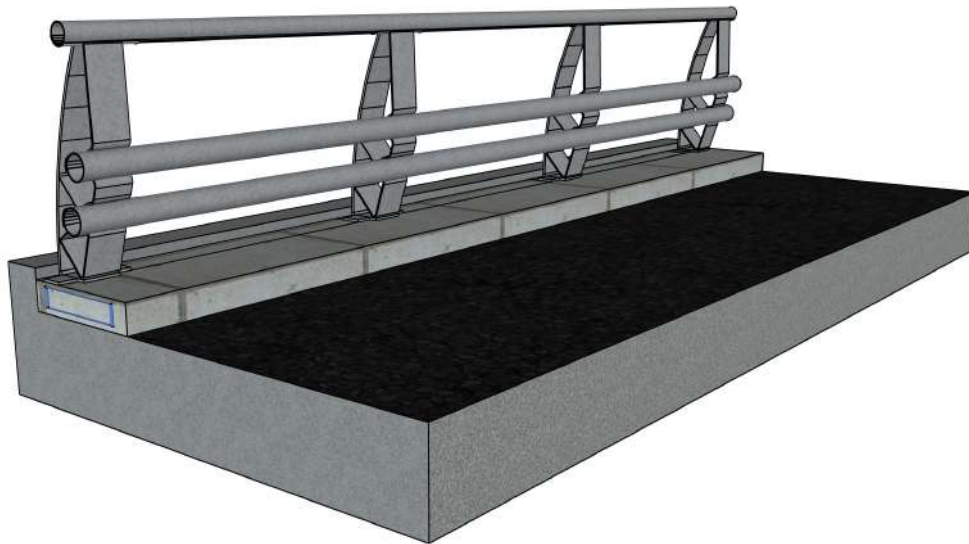
H2 ACCORDING EN1317

Containment Level	N1			N2	H1	H2	H3	H4a	H4b
Working width(W)	W8	W7	W6	W5		W4	W3	W2	W1
Vehicle Intrusion (VI)	VI8	VI7	VI6	VI5		VI4	VI3	VI2	VI1
Acceleration Severity index (ASI)	ASI A			ASI B			ASI C		

The additional features are:



- Distance between poles = 2m
- To ensure the guardrail function, the overall height in relation to the concrete support = 1,20 m
- To limit the influence on the structure, the space requirement between front and rear post face = 40 cm
- Non anchored version of the DOLRE H241, simplified assemblage
- No drilling in base concrete = no risk of piercing vulnerable underneath structures (water protection, pre-stressed steel reinforcement, ...)
- In order to limit the number of sealing holes, the average number of anchors per meter of device = 1 piece/m
- To limit or even avoid reinforcements, the forces transmitted by post are V=44 kN ; M=11 kNm to the kerb & M=0 kNm to the deck



Transitions level of validation			
	2 waves beam	3 waves beam	Concrete
Real crash test			x
Numerical simulation		x	
Design	x		



Easy to assemble



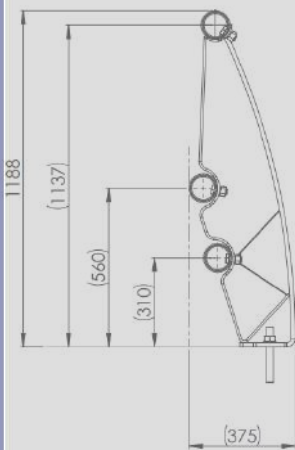
Costumed engineering solutions

DOLRE H255

H2 ACCORDING EN1317

Containment Level	N1			N2	H1	H2	H3	H4a	H4b
Working width(W)	W8	W7	W6	W5		W4	W3	W2	W1
Vehicle Intrusion (VI)	VI8	VI7	VI6	VI5		VI4	VI3	VI2	VI1
Acceleration Severity index (ASI)	ASI A			ASI B			ASI C		

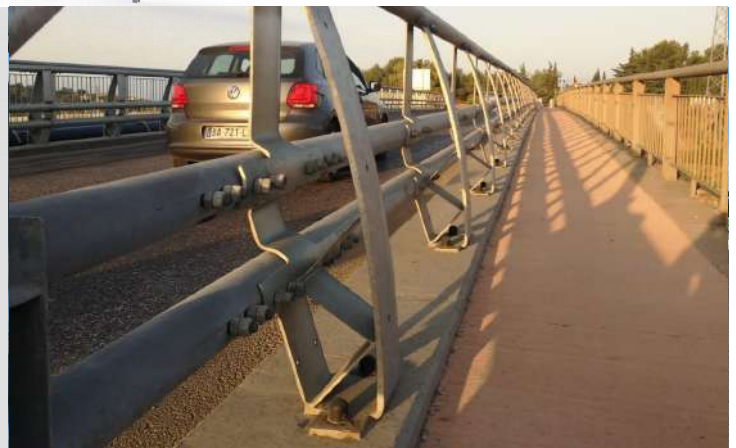
The additional features are:



- Distance between poles = 2m
- To ensure the guardrail function, the overall height in relation to the concrete support = 1,20 m
- To limit the influence on the structure, the space requirement between front and rear post face = 37,5 cm
- Simplified version of DOLRE H241, reduce thickness of beams and reduced quantity of screws, makes this system much lighter and easy to assemble.
- Improved stack ability .
- In order to limit the number of sealing holes, the average number of anchors per meter of device = 1 piece/m
- To limit or even avoid reinforcements, the forces transmitted by post are $V=44kN$; $M=11kNm$



Transitions level of validation			
	2 waves beam	3 waves beam	Concrete
Real crash test			x
Numerical simulation		x	
Design	x		



Lighter structure and easier to assemble

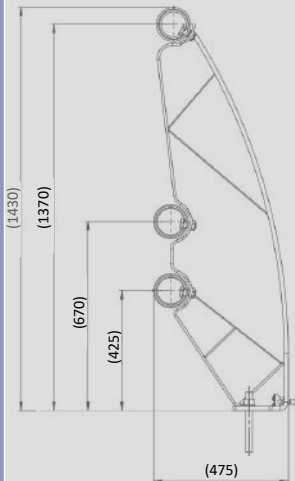
All models are EN1317 Crash tested

DOLRE H464

H4b ACCORDING EN1317

Containment Level	N1			N2	H1	H2	H3	H4a	H4b
Working width(W)	W8	W7	W6	W5		W4	W3	W2	W1
Vehicle Intrusion (VI)	VI8	VI7	VI6	VI5		VI4	VI3	VI2	VI1
Acceleration Severity index (ASI)	ASI A			ASI B			ASI C		

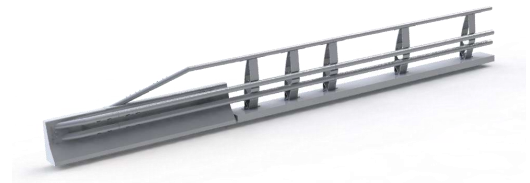
The additional features are:



- Distance between poles = 1,5m
- To ensure the guardrail function, the overall height in relation to the concrete support = 1,40 m
- To limit the influence on the structure, the space requirement between front and rear post face = 50 cm
- For aesthetic reasons , the connections between the longitudinal elements are not visible on the 180° front panel (the fixing points will only be located on the 180° rear panel)
- In order to limit the number of sealing holes, the average number of anchors per meter of device = 1.33 pieces/m
- To limit or even avoid reinforcements, the forces transmitted by post are $V=84kN$; $M=21kNm$



Transitions level of validation			
	2 waves beam	3 waves beam	Concrete
Real crash test			
Numerical simulation		x	
Design	x		x



Wide range of transitions

Possibility of chemical and mechanical fixation

ACCESSORIES



Pedestrian protection



Design pedestrian protection



Railway protection



Dull plate pedestrian protection



Chiroptera friendly extension



Chiroptera friendly extension with dull height extension



LED lights



Transitions

To 2 waves beam



To concrete

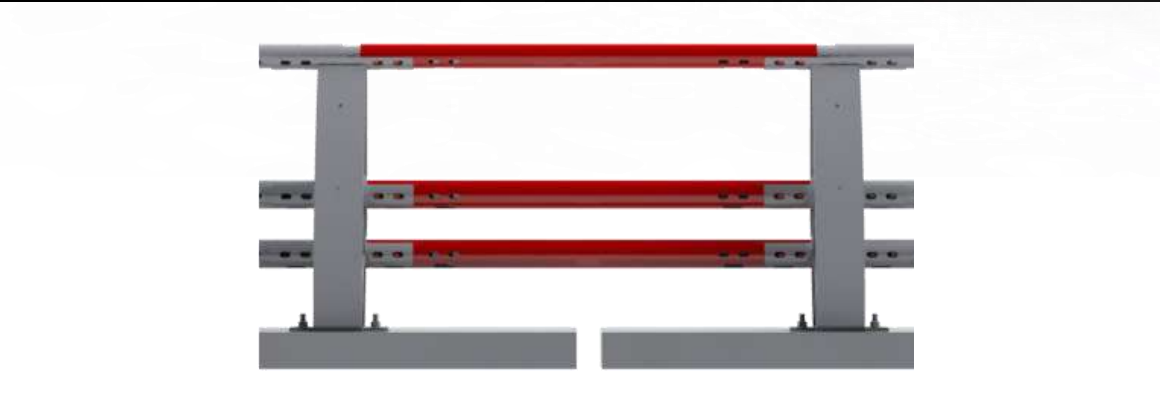


To 3 waves beam



Other adaptations

Expansion joint adaptation



Powder coating





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