VOLKMANN & ROSSBACH GmbH & Co. KG






EASYRAIL

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EASY RAIL Product Family





In most countries, the commonly applied guardrail types on secondary and rural roads are standard single guardrails, which have been approved for decades and are easy to install. In order to keep this simplicity while also achieving a significant improvement in containment capacity, VOLKMANN & ROSSBACH developed the EASY-RAIL product family with Containment Levels of N2, H1 and also the enhanced L1.

Unique Interconnectability

With the EASY-RAIL system, VR has created a new modular barrier family that provides a maximum of safety at minimal weight and guarantees a simple and fast installation.

All EASY-RAIL modules connect to each other without any additional transition construction, so that the user can easily change containment level and working width for every single situation. For connections to other guardrail systems, various tested transition constructions are available and more under development. Also available is the turned-down terminal Easy-Rail P2, tested at P2-A-level acc. to ENV 1317-4 and fitting to all N2 and H1 modules of EASY-RAIL.

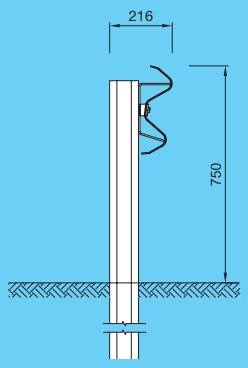
Straightforward Design

Thanks to a new steel, especially developed for EASY-RAIL in co-operation with one of the leading steel manufacturers, the system family is most effective and functional in terms of performance and installation.

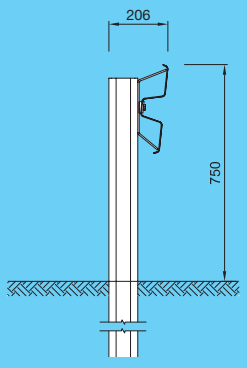
The guardrail beam is attached to the posts by a single screw, so that the installation effort is reduced to a minimum. Moreover, most of the competing barriers require more posts per meter to achieve the same performance level as EASY-RAIL. As the most time and cost consuming factor of guardrail installation is the pile-driving, EASY-RAIL can thus help to save 50 % or more of installation costs.

All EASYRAIL modules are available with profiles A-type (W-shape) or B-type and are CE-certified.

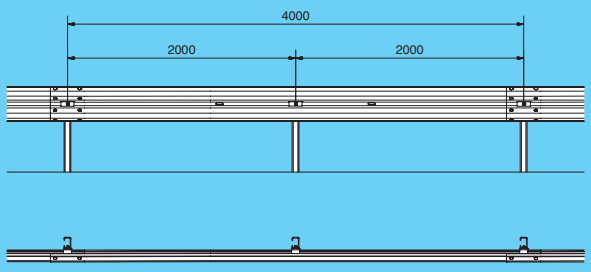
EASY-RAIL N2/H1 A-Profile



EASY-RAIL N2/H1 B-Profile



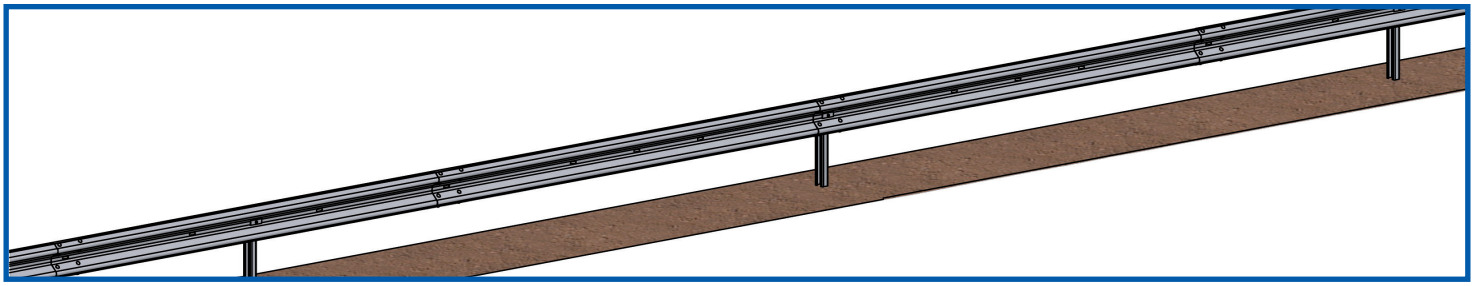
EASY-RAIL 2.00 (representing all N2/H1 modules)



EASY-RAIL Crash Test Videos

– either scan the QR code to the left with your mobile device or visit this URL to see a compilation of crash test videos:
www.volkmann-rossbach.de/videos/clip3

EASY RAIL N2 — N2 • W2/W3/W4/W5 • A



EASY-RAIL N2 offers a variable working width from 0.8 to 1.7 meters at N2-level, the most popular containment class on secondary roads. There are 4 modules with a post spacing of either 6.00, 4.00, 2.00 or 1.33 m available, all of which are tested acc. to EN 1317-2 to restrain a passenger car at an impact severity as less as A (ASI < 1.0). The modular system allows to choose the most cost efficient module for each situation. So obstacles can be secured with a firm W2-barrier, while in the interspace the post spacing may be widened up to economical 6.00 m. Because of the identical construction base of the EASY-RAIL modules, even changing to EASY-RAIL H1 is possible without using an extra transition construction.

EASY-RAIL 6.00 (N2·W5·A)

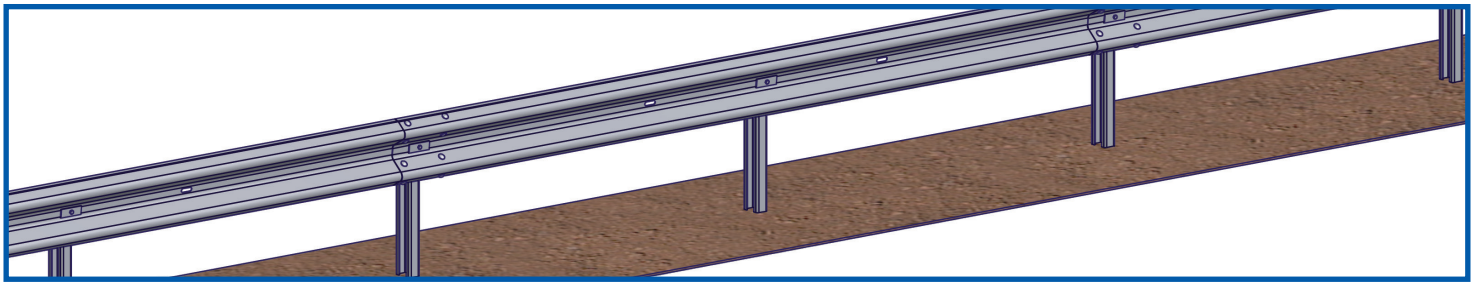
MODULE	EASY-RAIL 6.00	EASY-RAIL 4.00	EASY-RAIL 2.00	EASY-RAIL 1.33	
					
Post Distance	6.00 m	4.00 m	2.00 m	1.33 m	
Containment Level	N2	N2	N2	N2	
Working Width	W5 (W = 1.7 m)	W4 (W = 1.3m)	W3 (W = 1.0 m)	W2 (W = 0.8m)	
Impact Severity	A (ASI ≤ 1.0)	A (ASI ≤ 1.0)	A (ASI ≤ 1.0)	A (ASI ≤ 1.0)	
Weight/m (A/B)	13.6/12.6 kg/m	15.7/14.7 kg/m	19.9/18.9 kg/m	24.6/23.6 kg/m	
System Height	750 mm	750 mm	750 mm	750 mm	
System Width (A/B)	216/206 mm	216/206 mm	216/206 mm	216/206 mm	
Number of Posts	0.66 posts/4 m	1 post/4 m	2 posts/4 m	3 posts/4 m	

Test set-up EASY-RAIL 2.00 on slope

TB11 EASY-RAIL

TB32 EASY-RAIL

EASY RAIL H1 H1(L1) • W3/W4 • A



EASY-RAIL H1 is available in two modules with post distances of 2.00 or 1.33 meters, providing working widths of W4 (<1.3m) and W3 (<1.0m), respectively. Both modules are tested at H1, N2 and L1 level as well. The enhanced L1 level combines the requirements of N2 and H1, so that on roads with more truck traffic, EASY-RAIL is the ideal system. EASY-RAIL 1.33 and 2.00 are fully interchangeable with other EASY-RAIL modules, so that a continuous stretch of EASY-RAIL can be installed in places where two or more other guardrail systems plus related transitions would be required.

EASY-RAIL 2.00 (L1/H1·W4·A)

MODULE	EASY-RAIL 2.00	EASY-RAIL 1.33	
			
Post Distance	2.00 m	1.33 m	
Containment Level	H1 (L1)	H1 (L1)	
Working Width	W4 (W_m = 1.3 m)	W3 (W_m = 1.0m)	
Impact Severity	A (ASI ≤ 1.0)	A (ASI ≤ 1.0)	
Weight/m (A/B)	19.9/18.9 kg/m	24.6/23.6 kg/m	
System Height	750 mm	750 mm	
System Width /A/B)	216/206 mm	216/206 mm	
Number of Posts	2 posts/4 m	3 posts/4 m	

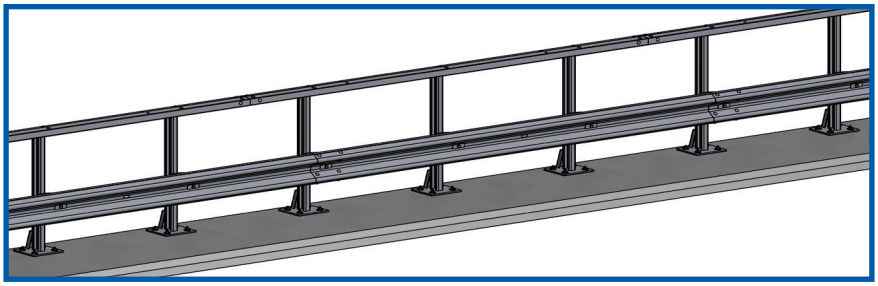
Containment Levels of EN 1317-2:2010 (excerpt)				
	Containment Level			Acceptance Tests *Name (Vehicle - Speed - Angle)*
Normal Containment	N1	--	--	TB31 (Car 1.5 t - 80 km/h - 20°)
	N2	--	--	TB11 (Car 0.9 t - 100 km/k - 20°) TB32 (Car 1.5 t - 110 km/h - 20°)
Higher Containment	H1		--	TB11 (Car 0.9 t - 100 km/k - 20°) TB42 (Truck 10 t - 70 km/h - 15°)
	L1			TB11 (Car 0.9 t - 100 km/k - 20°) TB32 (Car 1.5 t - 110 km/h - 20°) TB42 (Truck 10 t - 70 km/h - 15°)

Typical application with lower deflection "on the spot"

TB42 EASY-RAIL 1.33

TB42 EASY-RAIL 2.00

EASY-RAIL OS H1 • W4 • B

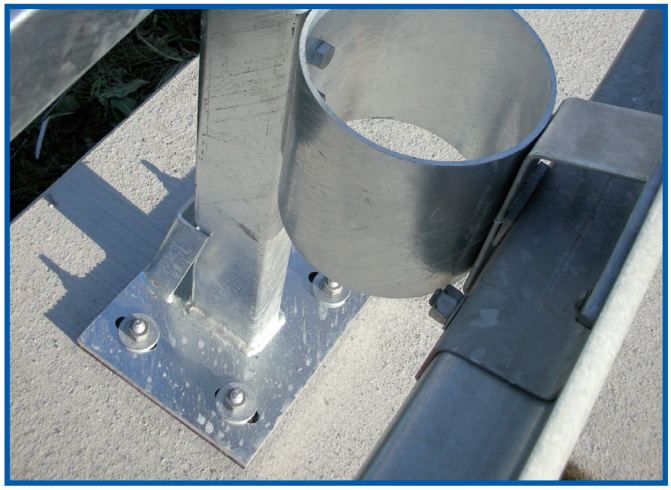


EASY-RAIL 1.33 OS, the solution for bridges and other structures, combines the excellent characteristics of the EASY-RAIL roadside crash barriers with a handrail for pedestrians. Thus, the system can be installed directly to the edge without an additional parapet. EASY-RAIL 1.33 OS is tested and certified to European standards, featuring a containment level of H1 and a working width of W4.

MODULE	EASY-RAIL OS 1.33
Containment Level	H1
Working Width	W4 (W_N = 1.1 m)
Impact Severity	B (ASI ≤ 1.4)
Weight m (A/B)	37.4/36.5 kg
System Height	1200 mm
Beam Height	750 mm from Road Surface
System Width	430/420 mm
Number of Posts	3 posts/4 m

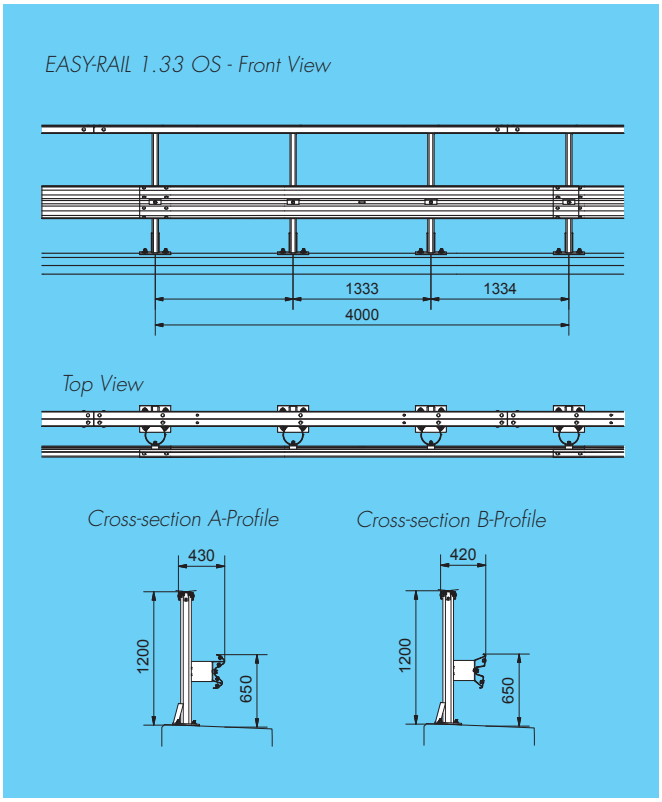
Characteristics

EASY-RAIL 1.33 OS is installed with a post distance of 1.33 meters and fastened with pre-cast or chemical anchors. Each post is equipped with an energy absorbing deformation tube at the beam side and a deformation stabiliser at its foot section. By these measures the energy affecting the bridge structure during an impact is remarkably reduced to zero. Accordingly, lightweight bridge caps without additional armouring can be used to reduce the costs for the bearing structure.

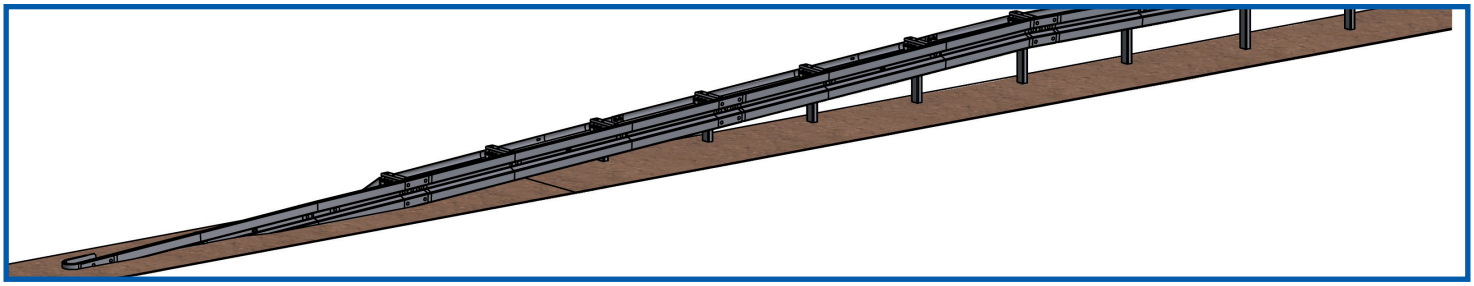


Detail: Base Plate with Deformation Stabiliser

TB42 EASY-RAIL OS 1.33 (H1·W4·B)

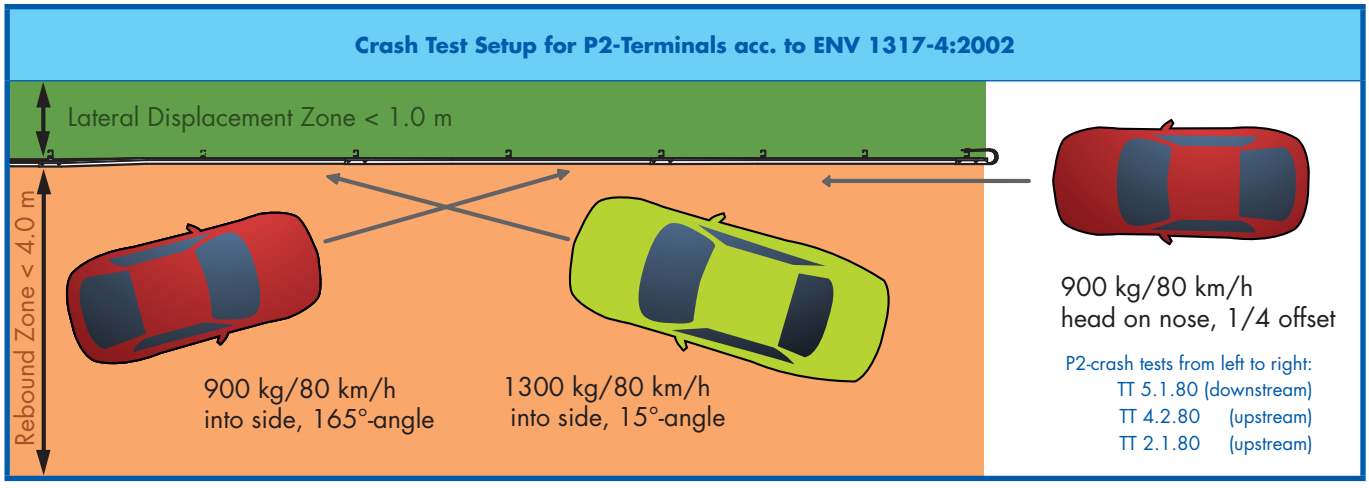


EASY RAIL P2 Terminal P2 A



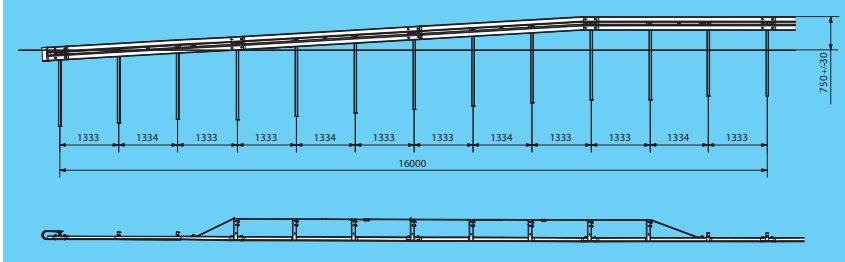
EASY-RAIL P2 is the turned-down terminal solution for EASY-RAIL installations. It is tested acc. to ENV 1317-4:2002 to P2 A performance level for downstream as well as upstream installation and so has proven to be reliable at speeds typically driven on rural roads. Easy-Rail P2 offers the best performance possible in terms of rebound, deflection and impact severity and fits to all EASY-RAIL modules at N2 and L1(H1) level.

TT 2.1.80 Crash Test EASY-RAIL P2

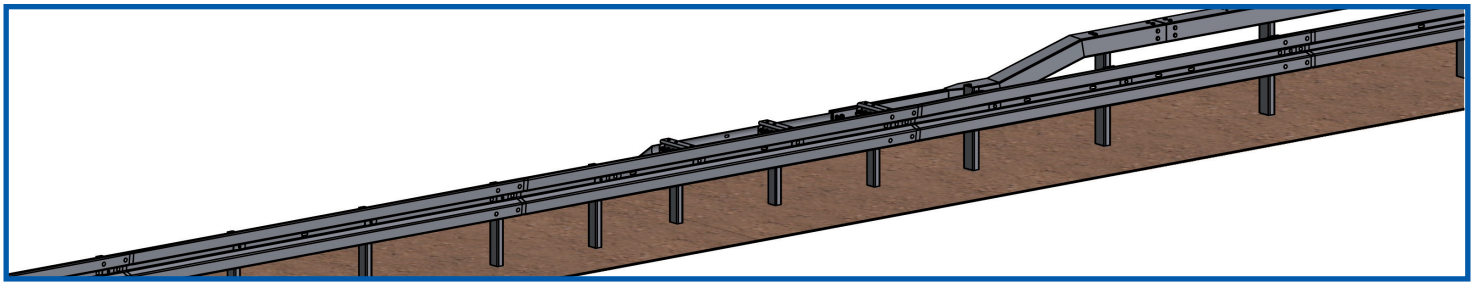


MODULE	EASY-RAIL P2
Post Distance	1.33
Performance Level	P2 A
Impact Severity	A (ASI ≤ 1.0)
Lateral Displacement	y1 (<1.0 m)
Rebound Range	Z1 (<4.0 m)
System Height	750 mm
System Width (A/B)	500/490 mm

EASY-RAIL P2 Terminal



EASY CONNECT Transitions H2 • H1 • N2

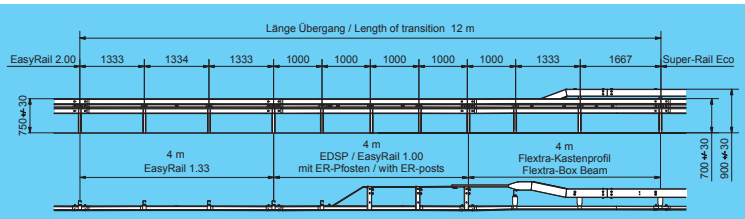


With EASY-CONNECT, the EASY-RAIL modules can be connected to other guardrail systems so that EASY-RAIL installation is also possible in places surrounded by existing barriers. All EASY-CONNECT modules are tested acc. to ENV 1317-4:2002 at a containment level that suits both of the joined systems. Today, EASY-CONNECT is available for SUPER-RAIL ECO and the German standard barriers Single Guardrail (ESP) and Single Spaced Guardrail (EDSP).

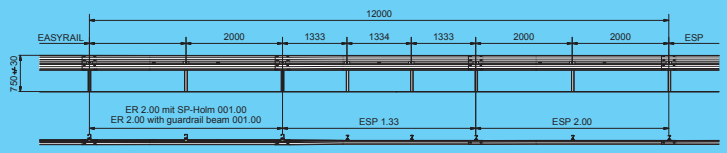
MODULE	EASY-CONNECT CONCRETE	EASY-CONNECT SUPER-RAIL ECO	EASY-CONNECT EDSP	EASY-CONNECT ESP
Post Distance	0.50 - 1.33 m	1.00 - 1.66 m	1.00 - 1.33 m	1.33 - 2.00 m
Containment Level	H2	H2	H1	N2
Working Width	W1	W4 (W_N = 1.2 m)	W3 (W_N = 1.0m)	W3 (W_N = 1.0m)
Impact Severity	B (ASI ≤ 1.4)	B (ASI ≤ 1.4)	B (ASI ≤ 1.4)	A (ASI ≤ 1.0)
Length	19.6 m	12.0 m	16.0 m	12.0 m
System Height	750-900 mm	750-900 mm	750 mm	750 mm
System Width (A/B)	610 mm	550/540 mm	500/490 mm	216/206 mm

TB42 EASY-CONNECT EDSP

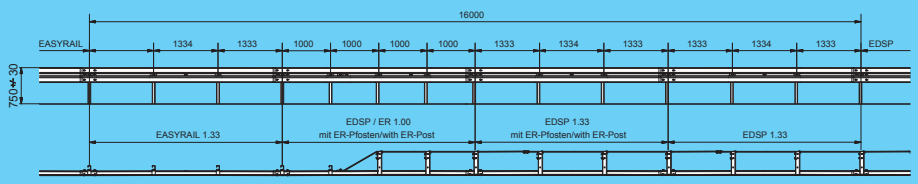
EASY-CONNECT Super-Rail Eco



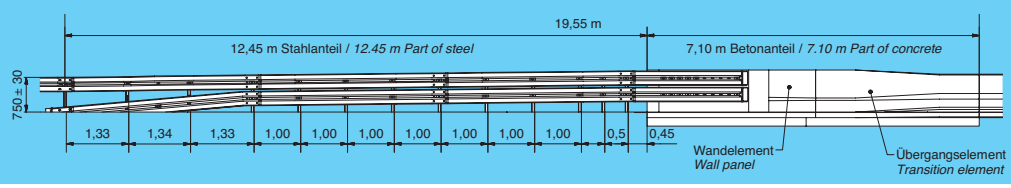
EASY-CONNECT ESP



EASY-CONNECT EDSP



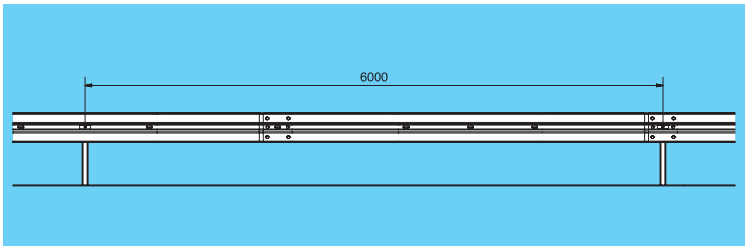
EASY-CONNECT CONCRETE



EASY RAIL Module Overview

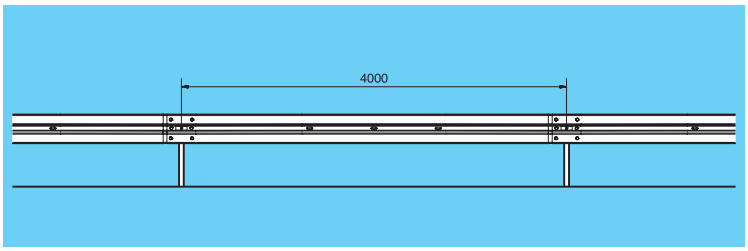
EASY-RAIL 6.00

Containment Level	N2
Working Width	W5 (1.7 m)
Dynamic Deflection	D_m = 1.6 m
Impact Severity Level	A (ASI ≤ 1.0)
System Weight per Meter (A/B)	13.6/12.6 kg
System Height	750 mm
System Width (A/B)	216/206 mm
Installation Length	84 m
Number of Posts /4 m	0.67 posts/4 m



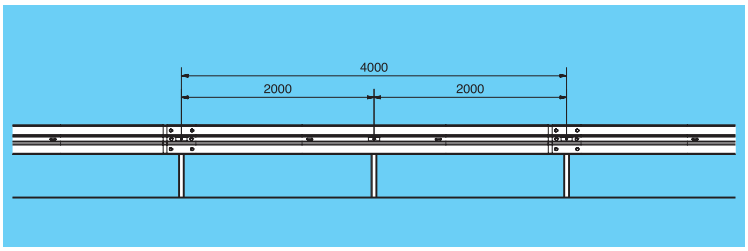
EASY-RAIL 4.00

Containment Level	N2
Working Width	W4 (1.3 m)
Dynamic Deflection	D_m = 0.9 m
Impact Severity Level	A (ASI ≤ 1.0)
System Weight per Meter (A/B)	15.7/14.7 kg
System Height	750 mm
System Width (A/B)	216/206 mm
Installation Length	52 m
Number of Posts /4 m	1 post/4 m



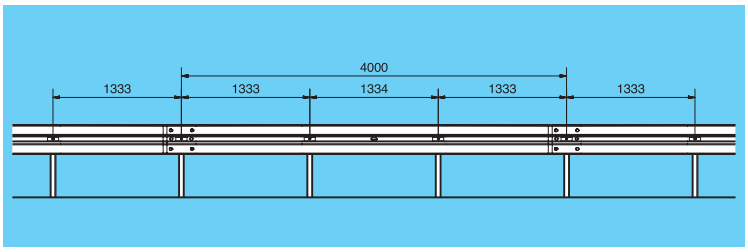
EASY-RAIL 2.00

Containment Level	N2	H1	L1
Working Width	W3 (1.0 m)	W4 (1.3 m)	W4 (1.3 m)
Dynamic Deflection	D_m = 0.9 m	D_m = 1.2 m	D_m = 1.2 m
Impact Severity Level	A (ASI ≤ 1.0)		
System Weight per Meter (A/B)	19.9/18.9 kg		
System Height	750 mm		
System Width (A/B)	216/206 mm		
Installation Length	52 m	68 m	68 m
Number of Posts /4 m	2 posts/4 m		



EASY-RAIL 1.33

Containment Level	N2	H1	L1
Working Width	W2 (0.8 m)	W3 (1.0 m)	W3 (1.0 m)
Dynamic Deflection	D_m = 0.9 m	D_m = 0.7 m	D_m = 0.7 m
Impact Severity Level	A (ASI ≤ 1.0)		
System Weight per Meter (A/B)	24.6/23.6 kg		
System Height	750 mm		
System Width (A/B)	216/206 mm		
Installation Length	48 m	60 m	60 m
Number of Posts /4 m	3 posts/4 m		



EASY-RAIL OS 1.33

Containment Level	H1
Working Width	W4 (1.1 m)
Dynamic Deflection	D_m = 0.6 m
Impact Severity Level	B (ASI ≤ 1.4)
System Weight per Meter (A/B)	37.4/36.5 kg
System Height	1200 mm
Beam Height	750 mm from Road Surface
System Width (A/B)	430/420 mm
Installation Length	36 m
Number of Posts /4 m	3 posts/4 m