



Heintzmann Sicherheitssysteme GmbH & Co. KG

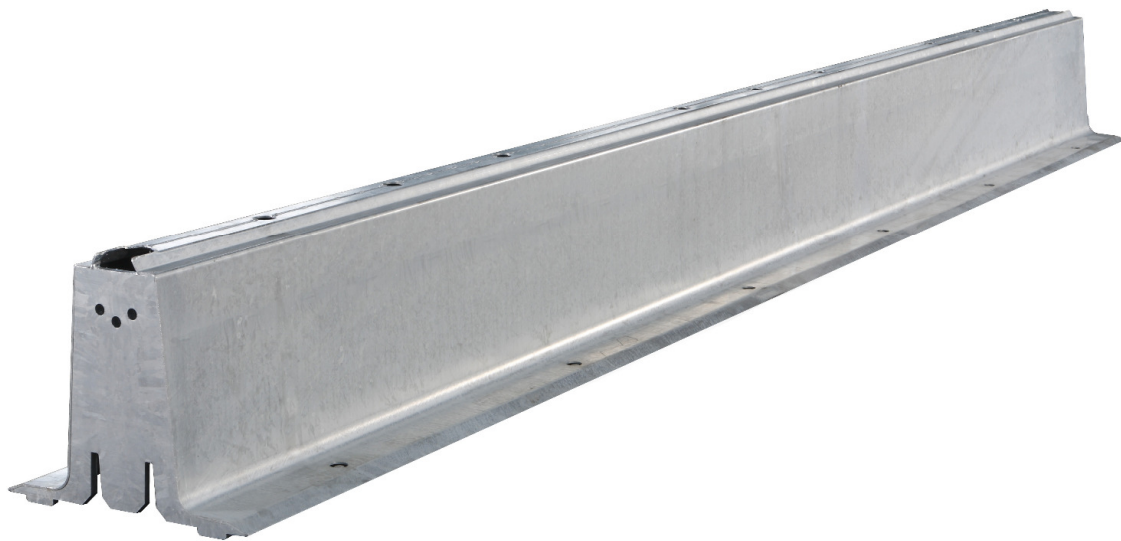
Installation manual

for the road restraint system

DUO-RAIL®

**Configuration Level K
(Basic element)**

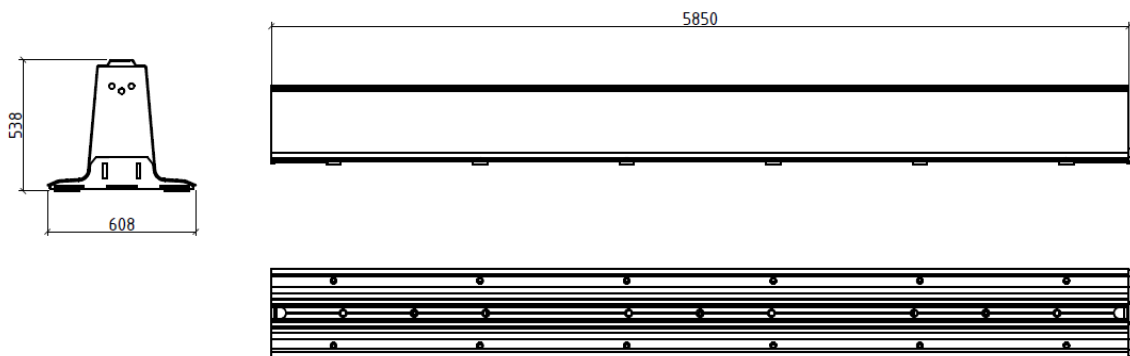
Containment level T1 + T2 and T3



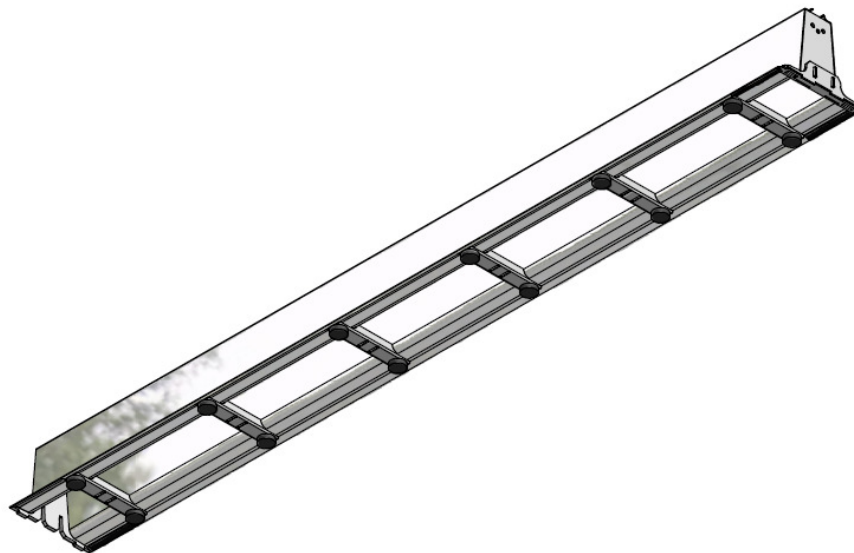


1. System description DUO-RAIL configuration level "K"

The DUO-RAIL system is characterized by a modular structure, which can meet various requirements regarding containment level and working width. The system consists of basic elements which are 5.85*0.60* 0.54 m. This is the "K" configuration. The basic elements are connected via a quick connector system and set on the street surface.



DUO-RAIL® Korpus





2 General

During transport, assembly and disassembly the respective valid national regulations (e.g. occupational safety, dangerous goods, tie-down safety, safety of workplaces on streets, traffic regulatory rules etc.) must be observed.

Installers must wear protective equipment such as reflective clothing, safety shoes, safety helmet and gloves.

During installation the installation manual instructions must be observed in order to ensure the performance characteristics according to inspections pursuant to DIN EN 1317-2.

During loading and unloading all general regulations must be observed. Only personnel with the technical training and experience will perform work.

3. Transport, Loading and Unloading

To optimize assembly, basic elements (5.85 m) are delivered as pre-assembled units of 11.7 m.

During transport it must be ensured that the elements are protected from damage through respective timber and/or edge protection elements.

The weight of individual elements in configuration level K is 410 kg and pre-assembled 11.7 m long unit is 820 kg.

The delivery of the elements is ideally done with a truck that has a crane available. It is also possible to load and unload with another vehicle equipped with a crane. It is recommended to use the hydraulic gripper unit that is intended for the system.



Example gripper unit



Especially when using chains or ropes instead of a hydraulic gripper unit, it must be ensured that the element does not swing across the road into oncoming traffic.

Furthermore, only sling gear must be used that ensures a safe and damage free handling.

Attaching pre-assembled elements



Attaching single elements



If elements are delivered and unloaded up-side-down, due to transport capacity optimization, then the elements must be set on the ground prior (using edge protectors) before turning. It must be ensured that the elements do not uncontrollably tip-over sideways.



4. System setup

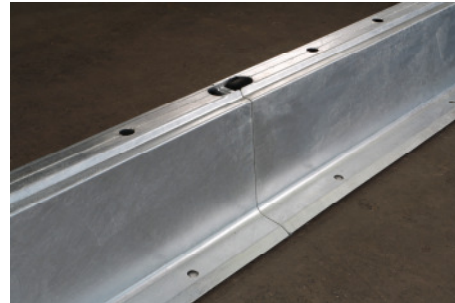
Prior to moving the elements it is advisable to mark the desired position of the system on the street surface.

When it is required to transition to existing constructions (e.g. concrete protection walls, pile systems), it is preferable to begin the installation at the transition.

After installing the first element the successive installation of elements is done.

It must be ensured that the elements are lifted up in a manner that both elements have a most parallel position to each other.

The elements must completely snap together.



If the latching is difficult due to uneven road surface then a pry bar can be used to lift the base of the system to facilitate the latching of the elements.



The minimum length of the system in containment levels T1 + T2 is 117 m.

The minimum length of the system in containment level T3 is 140,40 m.

After successful latching of the element a screw M20 x 70 DIN 933 8.8 (fvz) and nut must be installed in the middle of the installation area. The screw must be installed from the top in the assembly opening and tightened via a ratchet or box wrench.



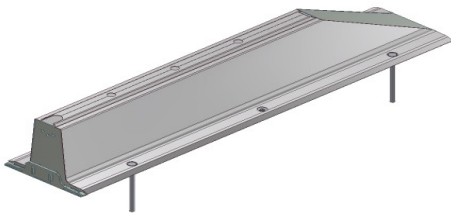
M20x70 8.8 DIN933

6. Installation of start or end constructions

The system is begun and finished with the respective start and end elements.

It is recommended to anchor the start and end elements with asphalt/ ground nails, even though these are not required according to the test according to standard DIN EN 1317-2.

Should the start and end elements be anchored, then four complete borings per start and end element must be made. These borings must have a diameter of 30 mm and be at least 400 deep. After the boring has been blown out, four asphalt/ground nails must be driven in up to the dead stop.



Prior to drilling the holes information must be obtained with regards to supply lines (electrical cables etc.).

Prior to installation these details must be coordinated with the manufacturer.



7. Connection of the DUO-RAIL® to further road restraint systems

Only connection parts from the manufacturer may be used if it is intended to connect the system to existing road restraint systems (such as steel guardrails, concrete protection walls).

Prior to installation these details must be coordinated with the manufacturer.

8. Accessory components

Only accessories (e.g. glare shield blades, reflectors) that are approved by the manufacturer may be used.

9. System check prior to traffic release

Prior to project completion of an installed system it must be ensured that all elements are coupled correctly and that the screws have been installed in the connecting area. See also Number 4.

Note: If the elements are not coupled properly then the installation of the connecting screw is not possible.

10. Disassembly process

The disassembly of the system is done by removing the screws in the connecting area and unlatching the element. Here it must be ensured that the elements are as parallel to each other as possible. In case of light wrapping a large plastic hammer may be used to hit the upper edge of the system in the connection area to ease the disconnecting process.

11. Reusability and Repairs

The systems components of DUO-RAIL® may be reused during reconstructions and/or rebuilding, if the components have no visible deformation and / or damages (visual check).

Use only original parts for repair.

No longer usable (damaged) system components must be render unusable.