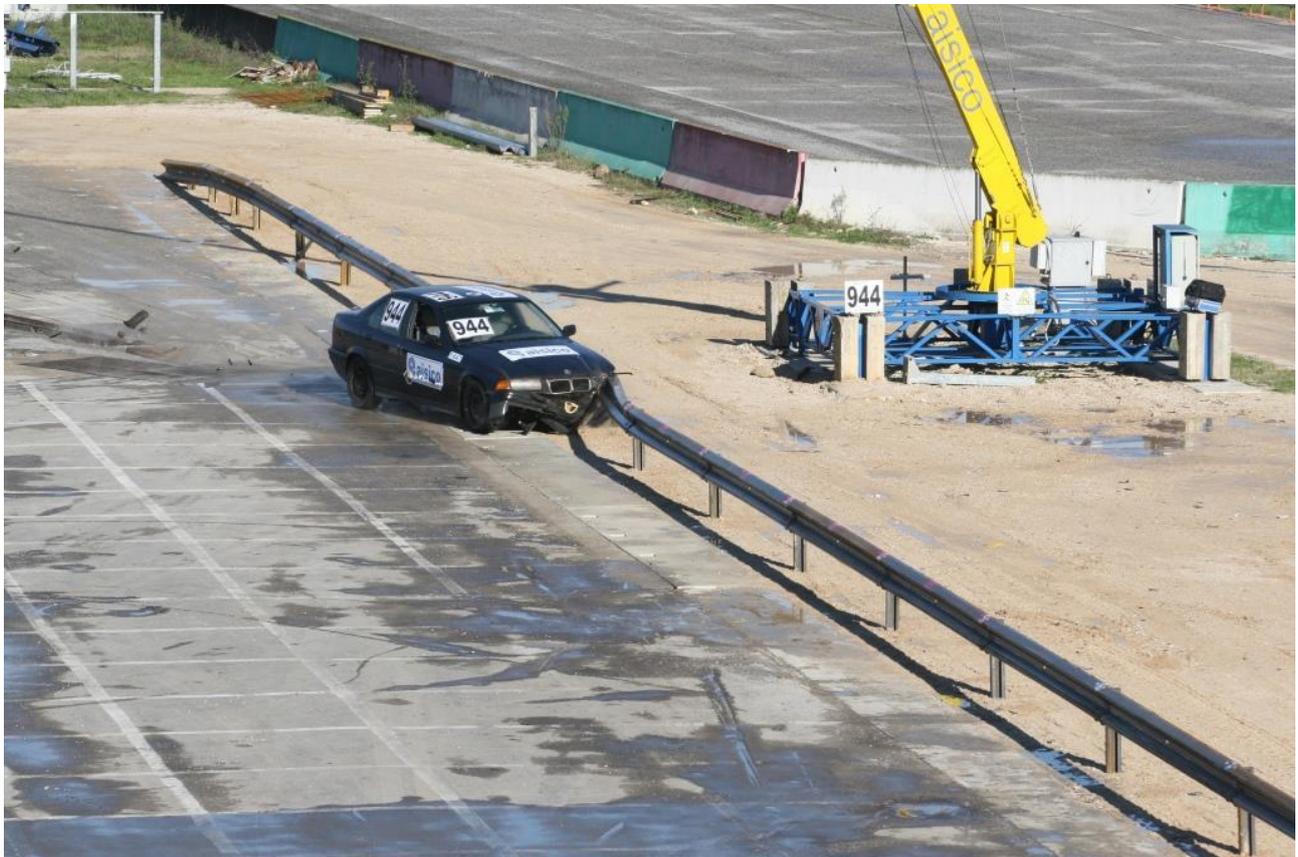


Barrier system N2W4 Lateral Side

N2BL-MARC2013

INSTALLATION MANUAL

NORWAY



Installation Manual Rev.002 – Nov. 2015

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Contents

1. General information
2. Installation conditions
3. Preliminary operations
4. Installation of the Posts
5. Installation of the Guardrail
6. Assembly in a curve
7. Inspections-Maintenance
8. Fixing the guardrail
9. Durability
10. Regulatory and technical references
11. Attachments and annexes

1. General information

This document is the manual for assembling the 2-wave beam metal guardrail called N2BL-MARC2013 / N2W4.

All the operations and the phases have been formulated for the correct installation and functioning of the guardrail, any modification should be agreed with, and authorized by, Marcegaglia Buildtech s.r.l.

Particular attention should be paid to the tightening phases with the necessary screws to avoid assembly problems in the successive stages.

The device (see MB-1851 assembly drawing) is composed of:

- 2-wave beam, 2mm thick Pos. 1
- C-shaped post 120x55x30, 4mm thick Pos. 2

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2. Installation conditions

The N2BL-MARC2013 / N2W4 guardrail is purposely designed for use as a roadside guardrail, to be installed on the ground.

You should make sure that the installation area can be accessed by the pile-driver vehicle and that there are no obstacles above the surface (trees, walls or pipelines, service structures, etc.).

3. Preliminary operations

For an efficient installation it is recommended to start by putting all the necessary material on the ground along the stretch where the guardrail is to be installed.

In particular, once the installation line has been decided, it is recommended that the 2-wave beams are placed on the ground horizontally with the wire along the line where the posts are to be positioned.

Their positioning should be precise especially where the beams overlap.

At this point you can drive in the first post of the stretch with a pile-driver and then you stretch a line to make sure the successive posts are aligned correctly.

When fixing the first post the penetration depth should also be checked so that the guardrail has the right height when completed.

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Normally, once the depth has been reached, the position should be highlighted by the pile-driver tool so that there is a precise reference point for the penetration of all the other posts.

4. Installing the posts

Having followed the recommendations above, positioning the poles becomes quick and precise since:

- the longitudinal width is given by the position of the holes on the beams laying on the ground
- alignment is guaranteed by the line
- the depth of penetration is given by the reference point on the pile-driver.

The vertical height of the head of the post can be out by +/- 1 cm since there are special slots for correctly installing the 2-wave beam.

Care should be taken that the pole is absolutely straight in the two directions, and this achieved using movements shifts of the pile-driver.

5. Installation of the guardrail

The 2-wave beam is then lifted (starting from the bottom of the tract so as to obtain the correct overlap of the beams).

The bolt for the next post is positioned only when the next beam is overlapped; these connections are formed of an M12 bolt, a nut, a washer and a rectangular slot covering plate to be positioned in front of the 2-wave beam.

At this point, it is also possible to fix the bolts (M16x30 TE) joining the beams (8, complete with nut and washer).

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Once this stretch has been assembled it is necessary to vertically align the beams in order to have the entire guardrail at the same height, or in any event at the same distance from the road.

Normally this operation is carried out by sighting the first beam and gradually correcting the successive ones by tightening the bolts that connect the beam to the post with a torque greater than or equal to 10 Nm +/- 1 Nm.

It is then possible to tighten the bolts joining the 2-wave beams, applying a torque greater than or equal to 40 Nm +/- 5 Nm.

6. Assembly in curve

The guardrail in question can also be installed in curved stretches having a minimum curvature radius of 60m, and there are appropriate slots that allow the installation using special standards.

Below this measurement it is necessary to calander the beams, and so an on-site survey and a specific design is required.

7. Inspections-Maintenance

The guardrail in question does not require any maintenance under normal working conditions.

It is recommended that the tightness of the bolts are checked every two years in case traffic vibration has loosened them.

If this is the case, further tightening is required to return to the required torque.

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8. Fixing the guardrail

In the event of an accident it is necessary to fix the damaged guardrail.

Depending on the severity of the impact it is possible to replace the damaged elements, starting with the 2-wave beams, up to replacing the posts.

Basically, it is recommended that the entire damaged guardrail is replaced starting with the stretch before the first deformed element (4m) and including the stretch after the last damaged element.

It is also recommended that the ground is compacted where the posts to be replaced have been removed.

9. Durability

All the components have been treated with a hot-dip galvanizing process in accordance with UNI 1461, with minimum thicknesses and covering depending on the thicknesses of the various elements.

10. Regulatory and technical references

UNI EN 1317-5 /2007 (road restraint systems)

UNI EN 22768: 1996 (tolerances)

11. Attachments and annexes

Assembly drawing of the N2BL-MARC2013 / N2W4 / MB-1851.



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