

Galvanised
Steel/Concrete



**Licence decision of the Swedish
Transport Administration (Trafikverket)
in capacity class T3
CE Certified in capacity class N2**

ProTec barrier system

ProTec is a product system for temporary use and is primarily intended as a continuous road restraint system.

The safety barrier system meets the requirements of EN 1317-2 in capacity classes T3 to H1.

ProTec 100 is a lightweight barrier of slim design with a compact working width (W2). The combination of concrete and steel minimises the formation of cracks at exposed points. Its design, combined with its low weight, makes transporting it easier.

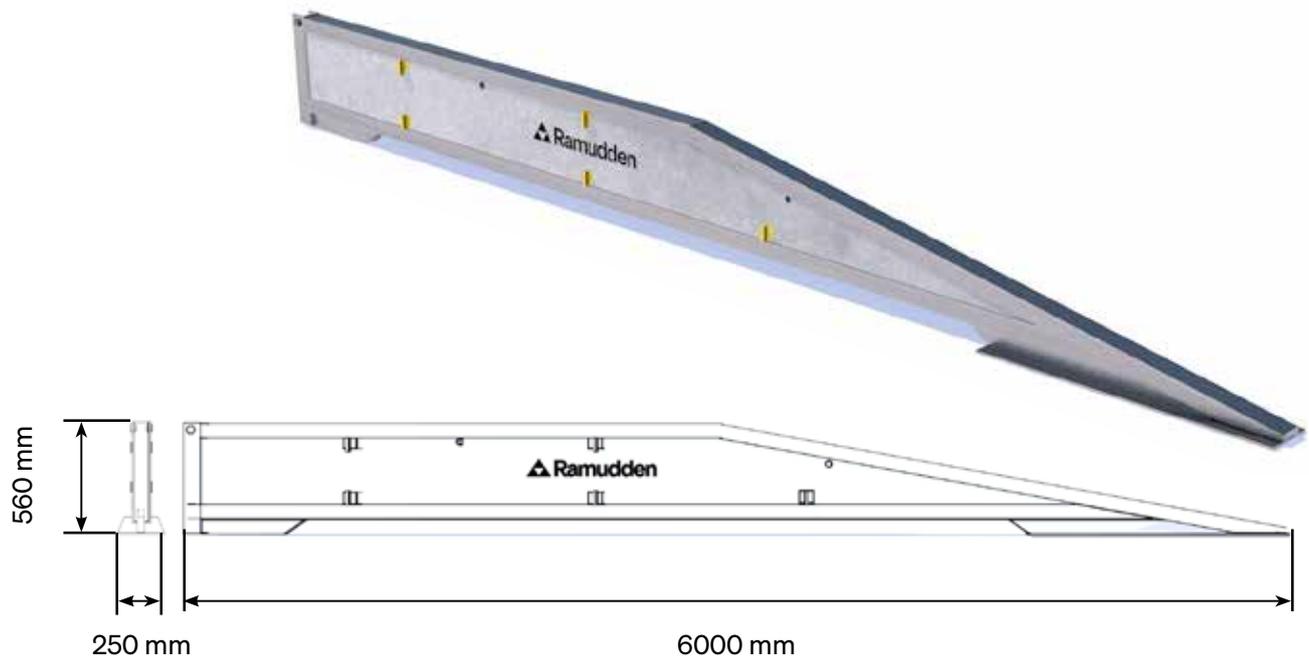
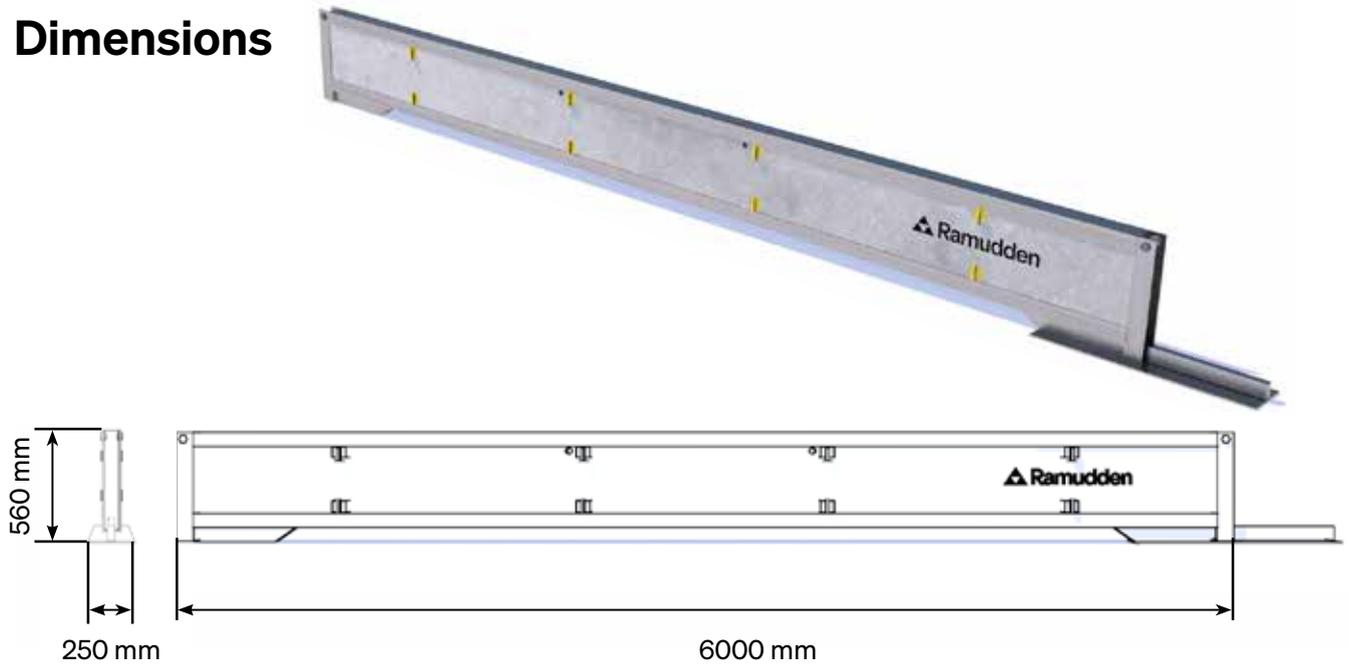
ProTec is made from concrete with a galvanised steel frame. The barrier stands on rubberised steel feet and does not need to be anchored in the ground. The design also allows water to drain from the roadway.

ProTec 100 can be linked together with ProTec 120 and 160 by using transition elements. Angle elements, spacer elements (extension elements for joins in bridge decks or equivalent), start/end elements and antitilt elements are also available where needed.

Contents

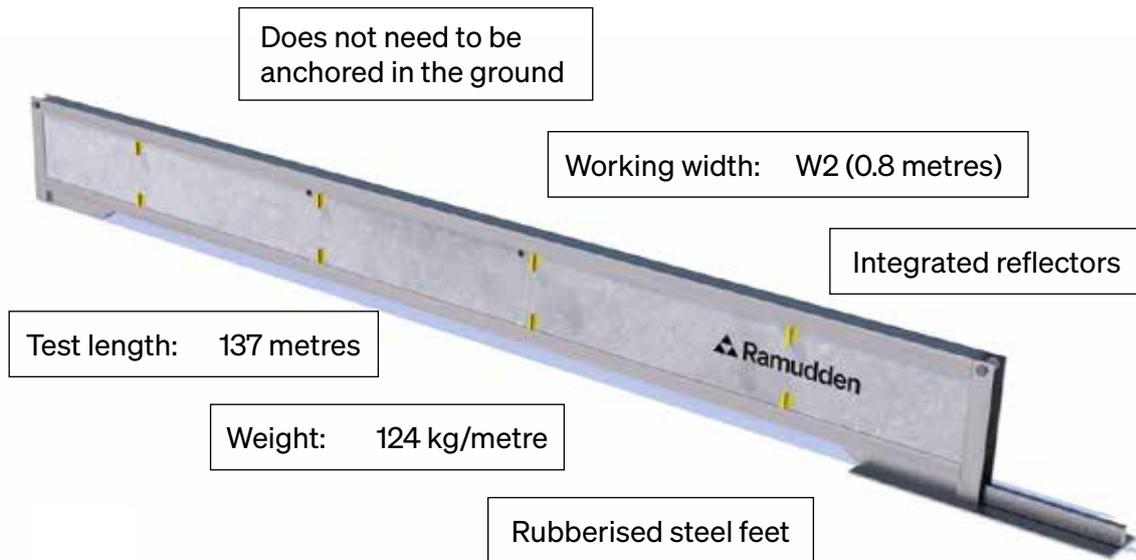
About the product	1
Dimensions and barrier data	3-4
Installation information.....	5-10
Storage management	11-12
Document from the Swedish Transport Administration (Trafikverket) "Decision on grant of licence"	13-14
Things worth bearing in mind	15

Dimensions



Barrier data

The performance figures relate to installation on an asphalt base in accordance with EN 1317-2.



Capacity class in accordance with EN 1317 ProTec 100	T3
Barrier length	6 metres
Working width class/Working width dimension	W2 / 0.8 metres
ASI	Class A
Injury risk class	A (lowest class)
Minimum installation length	137 metres
Minimum erected length before/after work zone	4 blocks / 24 metres

Instructions on installation

ProTec is a product system where the barrier sections must be secured together using bolted connections at each join between the sections. This means that the installer needs to be adjacent to the barrier during installation. As a result, there is a potential risk of crush injuries as well as other risks arising from the installer being within the barrier's buffer zone.

A ProTec 100 element is unstable unless connected to other elements. This is particularly true during installation and dismantling. There is therefore an increased risk of elements tipping over, resulting in serious injury.

To minimise risk of injury during installation and dismantling of ProTec 100, special tools have been produced, as well as work procedures which must be adhered to.

Equipment for installation

- Chain with lifting clamp
- Open 24 mm hexagon spanner (ring spanner)
- 24 mm hexagon socket with socket wrench or power driver
- Spacers for transportation (timber bedding)
- Crowbar with point
- Guy line

Tip!

During installation, it is a good idea to have a telescopic magnet with you to pick up nuts etc.



ProTec Support Stand

The ProTec Support Stand has been developed to minimise risks on installation, as an unconnected ProTec element will be unstable.

A ProTec 100 element is unstable when it is in the upright position and not connected to other elements. There is then an increased risk of the element tipping over, resulting in serious injury. Bear in mind that this is true during dismantling as well as on installation.

Installation instructions

A ProTec Support Stand must always be used whenever elements are installed or dismantled. The stand is solely designed to support ProTec 100 concrete elements. Make sure the locking pin is always locked in position when in use. The support stand must be removed once installation/dismantling of the barrier is complete/once it is sufficiently stable.

Checks

Visual checks of the support stand must be carried out before, during and after use. Where there is severe wear/deformation, the tool must be taken out of service immediately and repaired.

Exception

If an SMA-T2 crash cushion is installed together with ProTec 100, no support stand is needed, as the crash cushion on its own is enough to stabilise the erected element(s). Both installation and dismantling should be planned in such a way as to ensure that the crash cushion provides optimum stability during the process.



ProTec Lifting Clamp

Always use an approved/certified lifting clamp.
Make sure the locking pin is turned to the locked position.

Lifting clamp: PT 1090
Article number: 923676

The PT 1090 Lifting Clamp must be used for lifting ProTec 100.

To perform the lift, two lifting clamps must be used together with the chain supplied with them. The clamps must be secured in the two square holes at the top of the element.
The maximum load per clamp is 1000 kg.

Take care to ensure that the securing bolt/pin/handle is fully secure before performing the lift. To prevent the pin from slipping out of the hole in the element, the handle must point downwards.





Safe lifting



- Inspect the lifting equipment before the lift is performed.
- Only use lifting gear designed for the purpose.
- Never lift multiple interconnected elements.
- Take great care with respect to crush hazards.
- Check that the barriers are free, not frozen in place or obstructed. This is to avoid overloading the lifting gear.
- Make sure that lifting tines and other equipment items are free of snow and ice if this affects the lift.
- Make sure that the necessary documentation for the chosen lifting gear is available and that all instructions are properly followed.



Installation of the first element



Place an end joining pillar in the desired position.



Place a start/end element on one side of the pillar and, with the aid of a crane, lift an element into position on the other side of the pillar.



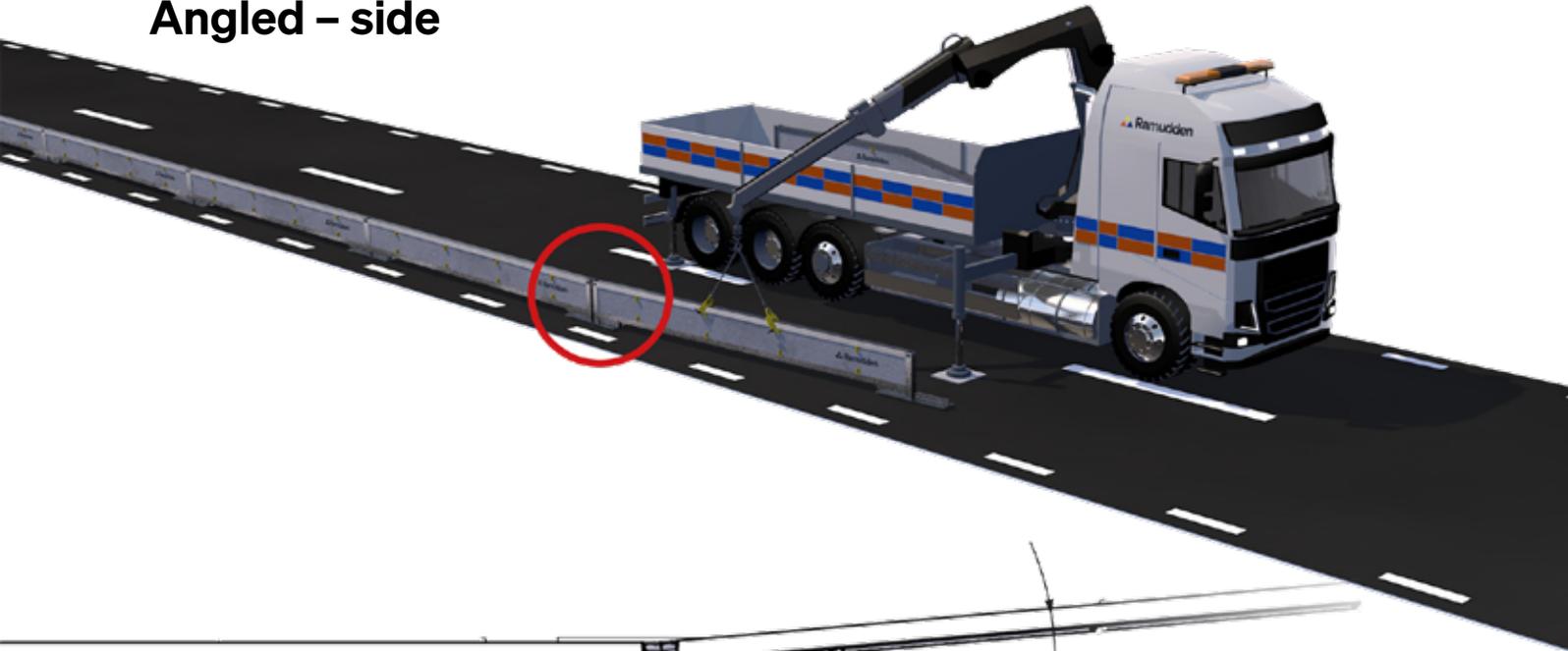
Once the element is standing on the ground, undo one of the lifting clamps. The crane will ensure the lifting chain in the remaining lifting clamp is held taut.



Place the support stand in the square hole which held the first (now removed) clamp and tighten the locking pin. The crane can now release the tension in the chain, and the second clamp can be removed. The first element is now standing in a stable position, and installation can be continued.

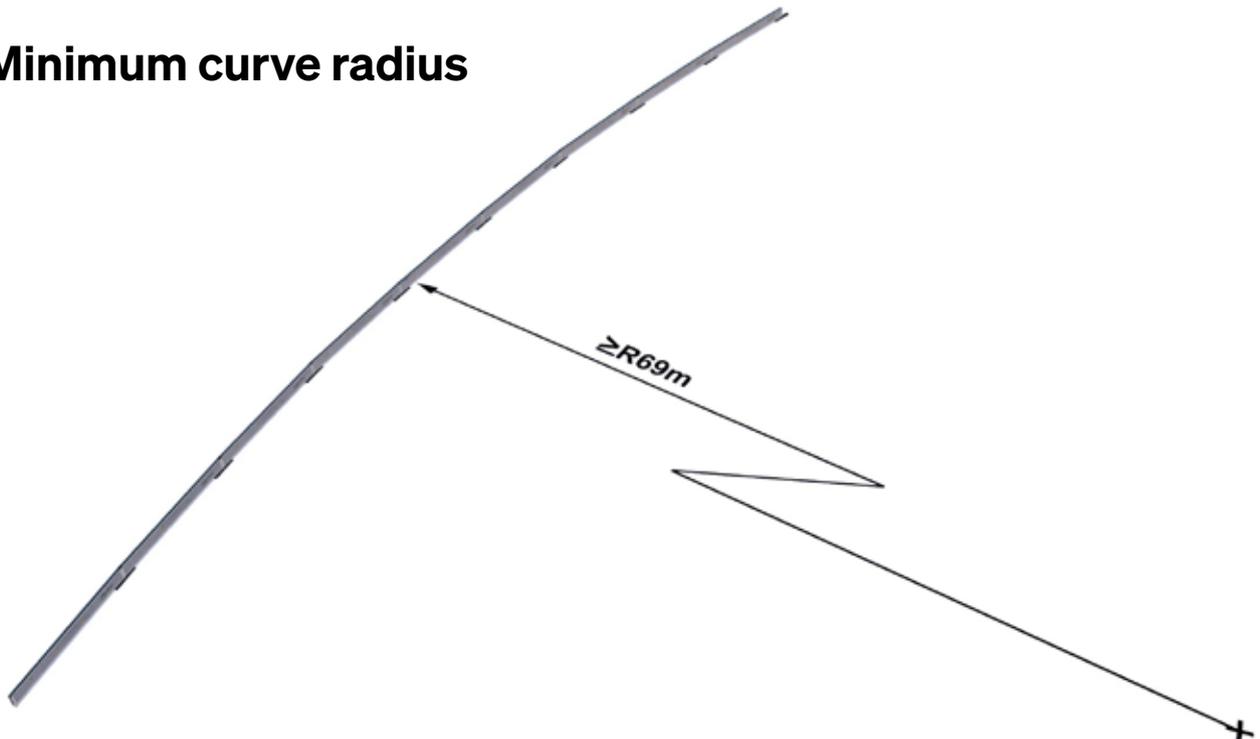
- Remove the support stand when more than three elements have been installed. Bear in mind that the support stand must never be placed within safety or buffer zones.
- If the start/end element is replaced by an SMA crash cushion, the crash cushion will be enough to stabilise the ProTec 100 element. No support stand will then be needed.
- Now continue to add the desired number of elements. These will be secured together with two bolted connections at each join. Use four M16×45 panhead bolts, four washers and four nuts, all of strength grade 8.8.
- Complete the installation process with another start/end element or a crash cushion.

Angled – side



+15°

Minimum curve radius



Safe storage management

When stacking barriers on top of each other, the following requirements must be met:

- ProTec must be stored lying on its side.
- Each element must rest on at least two pieces of timber bedding placed above the bedding of the previous layer.
- The timber bedding must be placed approximately one third of the way in from the element's outer edges.
- Each layer must be placed on timber bedding of adequate thickness (95×95 (4")) so that the feet lie free. The feet must not get caught when the element is lifted, as this could damage the rubber.
- The number of layers will depend on how many the ground can support, bearing in mind also that the stack must be sufficiently stable.
- The surface on which stacking takes place must be as horizontal and level as possible.
- For loading and unloading, a truck/wheel loader with forks may be used.
- For installation/dismantling, only lifting clamps may be used.



Checklist

Make sure that:

- Complete and up-to-date documentation is available.
- The necessary personal protective equipment is used.
- A risk assessment is completed before installation.
- Only lifting gear designed for the purpose is used.
- Only undamaged products are used.
- The installation certificate is completed by an authorised installer and approved by the client (where the barriers are erected on a public highway).

Inspection

Before each occasion of use, a simple set of checks is recommended:

- Visual inspection of visible damage to the barrier's components, signs of collision or of a barrier being dropped during lifting or similar.
- Inspect the rubberised steel feet. Make sure the rubber is fully attached to the entire surface of the foot.

Each year, check the barriers for the following:

- Crack formation in or around welds.
- Rust around welds.
- Crack formation or deformations in lifting shafts and around lifting slots.

Elements must not have any damage of the following type:

- Deformations.
- Fragments of concrete that have come away (greater than 2 kg).
- Feet which do not have rubber fully attached to the entire surface of the foot.
- Cracked weld seams.

For assessment of damage and the relevant action:

Contact Ramudden Sourcing & Supply.

Dokumenttyp: Beslut
Beslutat av: Persson Elenor SKTM
Dokumentdatum: 2013-02-18

Ärendenummer: TRV 2013/2524



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Trafikmiljöenheten

Ata Bygg och markprodukter

Beslut om tillåtelse av PROTEC 100 som temporär skyddsanordning

Beslut

Trafikverket bedömer, med utgångspunkt från resultat från nedanstående rapporter, beskrivningar samt VTI:s utlåtande, att PROTEC 100 uppfyller kraven som ställs på temporära skydd i skadeklass A och arbetsbredd W2 enligt EN 1317-2. Produkten tillåts därför för användning på det statliga vägnätet i kapacitetsklass T3.

Bakgrund

ATA Bygg och Markprodukter AB har ansökt om att få Barriär PROTEC 100 tillåtet som temporär skyddsanordning på det statliga vägnätet.

Till ansökan som kom in den 2012-11-13 bifogades dokumentation i form av testresultat från TUV SUD Automotive, München. Även monteringsbeskrivningar och skötselinstruktioner bifogades.

Två krocktest har utförts: TB 41 och TB21 vars medföljande dokumentation, som Trafikverket bett VTI att yttra sig om. VTI har i sitt yttrande granskat och kommenterat PROTEC 100, vilket ligger som grund till detta beslut.

Villkor

- Installation av PROTEC 100 i kapacitets klass T3, skadeklass A behöver inte vara förankrad. Räckets bör sträcka sig fyra räckes längder á 6 meter styck före och fyra räckes längder á 6 meter styck efter den tänkta ytan som skall skyddas. Räckets längd skall vara minst 137 m placerad på asfalterad yta, arbetsbredd W2.
- Räckets ändrar skall antingen skyddas med av Trafikverket tillåtna metoder eller vinklas ut från trafik.

Till produkten skall det medfölja monteringsanvisningar på svenska där leverantören tydligt visar de krav som ställs på en godkänd montering.

Beslutet gäller tillsvidare, dock kan det upphävas med omedelbar verkan om erfarenhet av användning visar att produkten inte fungerar på ett trafiksäkert sätt och på avsett vis.

Elenor Persson

Enhetschef Trafikmiljöenheten

Things to bear in mind:

IN GENERAL

- Always read the manufacturer's instructions carefully to ensure the product is used in a correct and safe manner.
- If anything is unclear, contact the manufacturer or the relevant sales point.
- Never mix products of different brands.
- Always observe the specified load restrictions.

STORAGE

- Wherever possible, store the products in a non-corrosive environment.
- Remember to store the products in the way intended by the manufacturer: e.g. in the case of stacking, to minimise the risk of damage/injury from tipping over or similar.

 Documentation	 Weight	 Tighten to torque
 Inspect	 Recycling	 Loosen
 Inspection once a week	 Correct	 Maximum permitted wind speed
 Inspection once a month	 Incorrect	 Force
 Check straightness	 Attention!	 Turn
 Check crack formation	 Tighten	 Install/insert