

ProTec 120: high containment level with small space requirements



Technical data ProTec 120

Impact test		System description	
Acceptance test:	TB 21 + TB 41 TB 11 + TB 42	Material:	steel and concrete
Test date:	21. 6. 2007 24. +25.9.2007	Height:	0.60 m
Containment level:	T 3 H1	Element length:	10 m
Test location:	TÜV Süd, Munich	System width:	0.30 m
Test length:	120 m 150 m	Planning-relevant width:	0.12 m
Ground anchoring:	no yes (only starter element)	Weight per m:	163 kg

Test conditions

Acceptance test	Test vehicle	Weight	Impact angle	Speed
TB 21/TB 41	car / truck	1.3t / 10t	8° / 8°	80 km/h / 70 km/h
TB 11/TB 42	car / truck	0.9t / 10t	20° / 15°	100 km/h / 70 km/h

Effective range as per DIN EN 1317-2 / BASt test numbers

Containment level	Dynamic deflection	Structural width	Effective range (column 2 + 3)	ASI-value
T 3	0.5 m	0.3 m	0.8 m W 2	0.3 (A)
H 1	1.3 m	0.3 m	1.6 m W 5	1.0 (A)

ProTec 120 test no. for H1: **BASt 2008 7E 54** and test no. for T3: **BASt 2007 7E 57**
 Reflector element test no: **BASt V4-08/2002**

Areas of use / Other special aspects

Areas of use	Other special aspects
All areas (A to E) between road works and on-coming or parallel flowing traffic and between contra-flow traffic, for cars also in the transition zone	Narrow and compact crash barrier with high containment levels and lowest impact force level "A"; reflectors mounted in protected recess so cannot be shared off; large-sized water drainage opening so cannot accumulate at the wall; rubber-based standing area, kind to the road surface

Only **14 cm** planning-relevant width!

ProTec 120

Fulfils the containment levels **T3/W2** and **H1/W5**.

ProTec 120 convinces with:

- *Small effective ranges*
- *Optimum containment level*
- *Smallest effective ranges*
- *Low ASI value "A"*
- *Narrow planning width*
- *Many possible uses*
- *Large water drainage opening*
- *Protected reflectors*
- *Fast assembly*
- *Low weight*
- *Minimum space requirements*
- *Low transport costs*
- *Highly economical*



ProTec 120: the mobile crash barrier that fulfils the extremely low ASI value "A" in the containment levels T3 and also H1!

www.mobile-Schutzwaende.de

ProTec 120: a crash barrier for many possible uses

"To avoid the consequences of accidents caused by vehicles veering out of lane, long-term road works should always be equipped with transportable road restraint systems **where these are feasible with regard to the available width of the complete cross-section of the road...**"

This is the wording of the Additional Technical Contract Conditions and Guidelines for the Work Involved in Safeguarding Road Works (ZTV-SA 97).

This means that for practically all long-term road works, a tender should be issued for a very narrow crash barrier in order to preserve the largest possible cross-section of the road.

Visible signs or double marking lines for purely visible separation of on-coming traffic (the total width of a yellow double marking line is 50 cm) are now finally relegated to the past, because the intention is to provide maximum protection for road users and the workers on site. The ideal crash barrier should have the smallest possible width with a high containment level and the lowest possible ASI value.

Narrow crash barrier – high containment level

At the latest by now it is possible to completely invalidate the claim that a crash barrier cannot be erected because the cross section of the road is too narrow.

With a structural width of only 30 cm (the total width of a yellow double marking line is 50 cm) the mobile crash barrier ProTec 120 can be used practically anywhere.

Successful tests by TÜV-Süd in Munich with cars and trucks (TB21 + TB41, TB11 + TB42) verified that the crash barrier fulfils all the criteria of DIN EN 1317-2 with outstanding results. The German Federal Highway Research Institute (BAST) has included ProTec 120 with containment levels and effective ranges T3/W2 and H1/W5 in its approval list "TL portable road restraint systems". The list can be downloaded from the BAST's website on the internet.

Safe, compact, economically efficient

The special construction of the reinforced concrete crash barrier ProTec 120 provides optimum protection. The impact energy, which has such a violent effect on the people sitting in a crashing vehicle, is clearly absorbed by the crash barrier with **ASI values of 0.3 resp. 1 (A)**. The particular design – concrete is enclosed by an all-round sectional steel frame – means that no parts can break out of the crash barrier. The vehicle coming up against the crash barrier is guided in an optimum line and then drives on parallel to the crash barrier.

To preserve the guiding effect of the crash barrier, the reflectors are mounted in such a way that when a vehicle touches them, they do not come away from the wall but are protected in recesses, so that the vehicle cannot shear the reflectors off. The

special design of the rubber-based standing surface results in optimum distribution of the pressure on the road. In addition, with one single stand for ten metres of crash barrier, there is a large opening for water and dirt to drain through over a length of eight metres.

Storage, transport and assembly are highly economical. 150 m of finished elements ProTec 120 can be transported to the site by one single truck. A 3-man team will be capable of achieving daily installation rates of up to 2.5 km, while the small planning-relevant width of 14 cm allows for extremely space-saving storage.

Ideal crash barrier for many areas

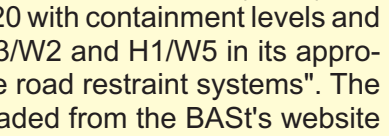
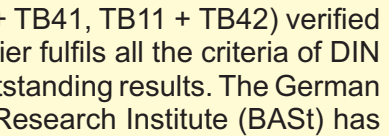
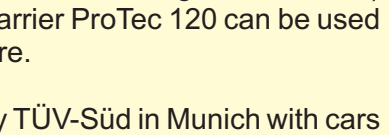
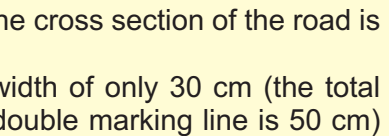
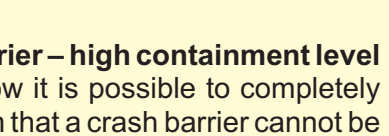
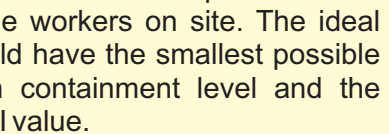
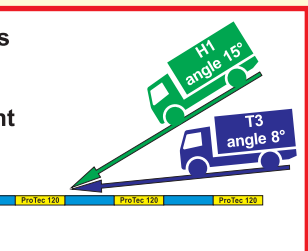
Universal possible applications make ProTec 120 the ideal crash barrier for all areas covered by the ZTV-SA 97. Thanks to the good impact test results, the crash barrier can be positioned between the road works and on-coming or parallel flowing traffic, and also between contra-flow traffic.

ProTec 120 – the ideal protection for universal use!

Successful impact tests with cars and trucks at TÜV-Süd in Munich

ProTec 120 fulfils the containment levels T3 / W2 and H1 / W5

Outstanding ASI value impact force stage "A"



ProTec 120: safe, compact, economical



The 10 m elements of ProTec 120 are embedded all round in sectional steel.



Lane switching and transition zones are no problem with ProTec 120: ideal guiding effect thanks to the reflectors.



Low ASI value "A" in both containment levels T3 and H1 protects the people sitting in the vehicle during possible impact against the wall.



Up to 150 m of ProTec 120 can be loaded in a truck and brought to the site.



Special mounting tool for shortest assembly times with only one 3-man team.



One stand is always fitted to the element. All it takes is to screw in two bolts every 10 m.



The contact surface of the stands measures 120 x 30 cm with a rubber base – extremely kind to the road surface.



The retractable BAST-tested reflectors are fitted to the concrete in such a way that they recede into the concrete when touched and are preserved even when a vehicle touches the barrier.



The planning relevant width is only 14 cm - that is narrower than a motorway marking line



Wide water drainage opening of 8 m in length guaranteed for every 10 m element.



ProTec 120 starter element: T3 test without anchoring.



Storage of ProTec 120 takes up only 1/3 of the space required for previous crash barrier systems.

Great protection with small dimensions

More road safety with ProTec 120