

4. Additional tests to be carried out:

4.1 Edge to be used for testing:

For the dynamic tests, **an edged (type A)** drawn square steel bar in accordance with DIN EN 10278:1999-12 (material C 45+C or E 335 GC (ST60) pursuant to EN 10025) shall be used. The dimensions of the steel bar shall be at least $10 \times \leq 70$ mm, the edge radius (0.5 +/- 0.05) mm, the surface roughness in accordance with DIN EN ISO 1302: average surface finish $R_a = 3.2 \mu\text{m}$.

Observe after each test the edge is still intact otherwise use a new edge

4.2 Test mass and sample lengths:

- 1- The test mass (steel weight as in EN 364) shall correspond to the nominal weight, but shall at least be 100 kg.
- 2- According to 4.4 and 4.5 requirements and figure 1, the manufacturer has to provide following samples for testing:

- Dynamic performance - perpendicular to the edge : L = 3,3m (exact value for lab: 3 354mm)
- Dynamic performance – with a lateral offset of 1.50m : L = 3,8m (exact value for lab: 3 807mm)
- Dynamic strength - perpendicular to the edge : L = 3,6m (exact value for lab: 3 606mm)
- Dynamic strength - with a lateral offset of 1.50m : L = 4,0m (exact value for lab: 4 030mm)

Nota: test lab can adjust the exact length specified between brackets on its test facility
if necessary anchor the device to a length of chain to achieve the 1.5 m offset.

4.3 Locking performance:

Mount the retractable type fall arrester as indicated by the manufacturer, in a horizontal arrangement. The lanyard is directed vertically downwards by means of a pulley, at a distance of 300 mm from the outlet.

When a mass of between 5 and 30 kg is attached to the lanyard, the retractable type fall arrester shall lock within a distance of 2.00 m

4.4 Dynamic performance

In two drop tests, the retractable type fall arrester is submitted to a dynamic performance test in a horizontal arrangement as indicated by the manufacturer, similar to the test arrangement (see figure 1). The anchor point shall be situated at the same level as the edge used for testing. The distance between the anchor point and the edge must be 2.5 m. A new test sample may be used for each drop test. No support has to be placed below the case (except if the manufacturer specifies in its Instructions for use that the case has to be used level and give information of this support)

A first drop test is carried out perpendicularly to the edge and a second drop test with a lateral offset of 1.50 m. The drop weight is released from a height of 1.50 m and at a horizontal distance of 50 cm from the edge. The force is measured at the test mass and the arrest distance shall be determined. . A clip can be placed on the retractable lanyard to avoid that the mass connector would hit the edge. This clip must be placed at its maximum extension length from the retractable type fall arrester (e.a. at 200mm).

- The determined braking force at the test mass shall not be greater than 6 kN.
- The retractable type fall arrester shall hold the test mass.

Both dynamic performance shall be carried out at the end stop with the full lanyard being withdrawn from the device. For this purpose, the lanyard provided by the manufacturer together with the retractable type fall arrester shall have an adequate length (Cf. to 4.2).

4.5 Dynamic strength

Two drop tests are carried out following the same test arrangement as described in 4.4. However, the drop height of the test mass is 2m above the edge. A new test sample may be used for each drop test.

The arrest distance and the braking force are not determined.

- The retractable type fall arrester shall hold the test mass.

4.6 Static strength

After the dynamic strength test, with the same test arrangement, the force applied to the lanyard is increased to 3 kN for wire ropes or 4.5 kN for textile lanyards and is maintained for 3 min.

- The lanyard shall withstand the force.

4.7 Test with non rigid anchor device

If the manufacturer claims the retractable fall arrester can be used in conjunction with a non rigid (flexible) anchor device, dynamic performance tests have to be repeated with this combination.

5. Additional information to be included in the marking:

- Advice that a horizontal use of the retractable type fall arrester over **an edge type A** is possible (pictogram if applicable)
- Advice that loading of the retractable type fall arrester over edges shall be avoided.

6. Additional information to be included in the instructions for use:

- a) Advice that the retractable type fall arrester was tested also for horizontal use and a drop over a **Type A** edge has been successfully tested.
Type A edge definition: A steel edge with a radius of $r = 0,5$ mm and without burrs was used for the test. Due to this test, the equipment may be used over similar edges, as can be found e.g. at rolled steel profiles, at wooden beams or at a clad, rounded roof parapet. However, the following shall be considered when the equipment is used in a horizontal or transverse arrangement and a risk of a fall from a height over an edge exists:
1. If the risk assessment carried out before the start of the work shows that the edge is very “cutting” and / or “free of burrs” (such as in case of an unclad roof parapet, a rusty steel girder or a concrete edge)
 - relevant measures shall be taken before the start of the work to prevent a drop over the edge or,
 - before the start of work, an edge protection shall be mounted or
 - the manufacturer shall be contacted.
 2. The anchor point may only be situated at the same height as the edge at which a fall might occur or above the edge.
 3. The required clearance below the edge at which a fall might occur shall be defined.
 4. To attenuate a drop ending in a pendulum movement, the working area or lateral movements to both sides of the centre axis shall be limited to a maximum of 1.50 m. In other cases, no individual anchor points, but, e.g., class C or class D anchor devices in accordance with EN 795 shall be used.
- b) Indication whether the retractable type fall arrester may be used with a class C anchor device in accordance with EN 795 with a horizontal flexible anchor line. (Note: This combination must have been submitted to EC type examination). Furthermore, the deflection of the anchor device shall be taken into account when determining the clearance required below the feet of the user. To that effect, the indications specified in the instructions for use of the anchor device shall be considered.
- c) The deflection of the anchor device shall be taken into account when determining the clearance required below the feet of the user. To that effect, the indications specified in the instructions for use of the anchor device shall be considered.
- d) Advice on existing risks of injury during fall arrest when the user collides with parts of building or construction during a fall over the edge.
- e) Advice that, for the event of a fall over the edge, special rescue measures shall be defined and trained.

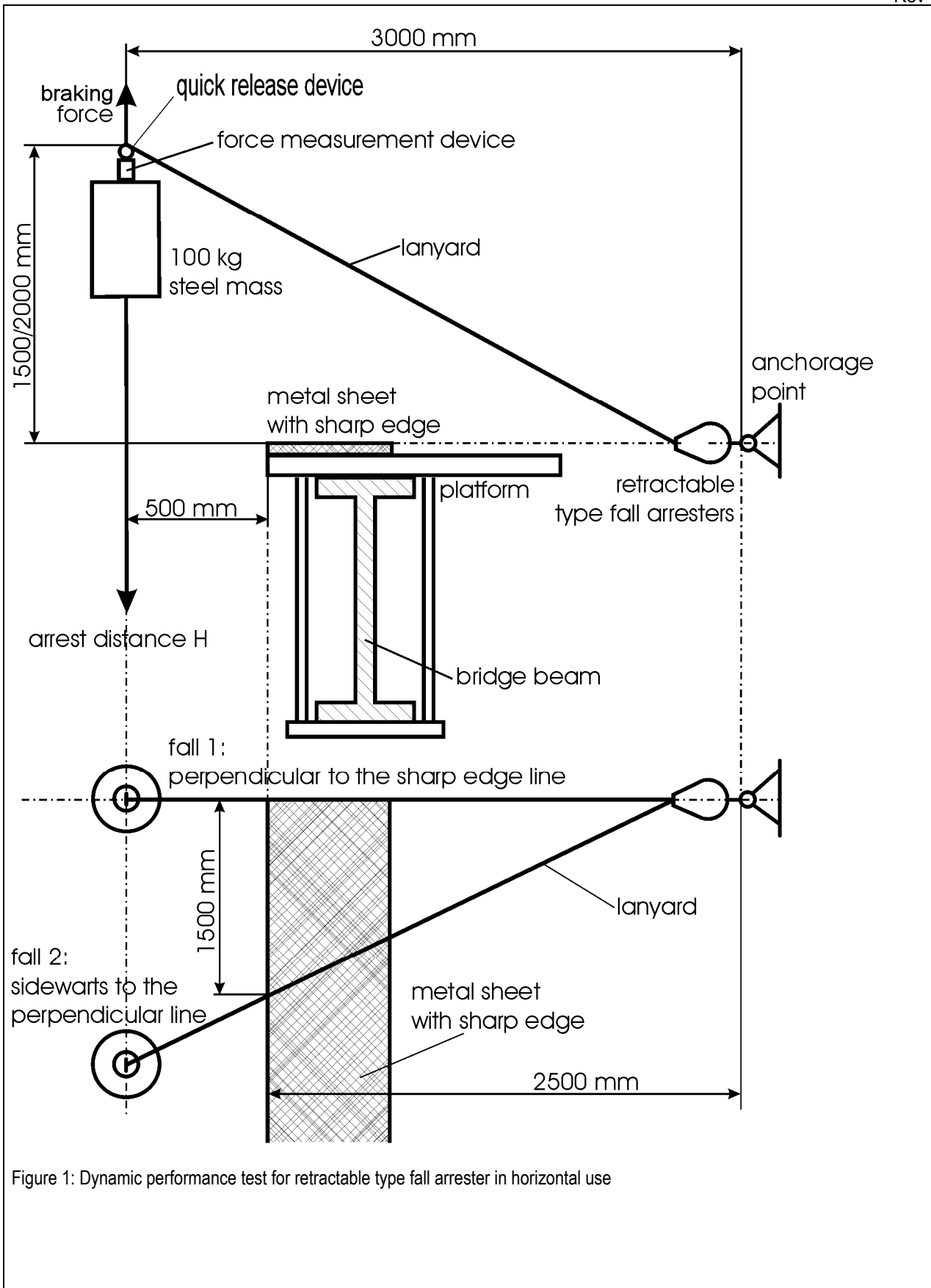


Figure 1: Dynamic performance test for retractable type fall arrester in horizontal use

(1) Essential safety requirement
(2) HC = horizontal committee

(3) N° of CEN/TC (Secretary & Chairman)
(4) EEC Standing Committee 89/392

(5) To be specified