

**SUBMISSION TO COMMITTEE 98/34 on “STANDARDS AND TECHNICAL REGULATIONS”
of any decisions taken.**

I - Reference to the Directive concerned and explicit reference to the safeguard clause of the Directive

- Directive 89/686/EEC of 21 December 1989 on the approximation of the laws of the Member States relating to personal protective equipment.
- Article 6 of Directive 89/686/EEC provides for the possibility of a Member State to contest harmonized standards that do not completely satisfy the relevant basic health and safety requirements of the Directive.

II – References of the standards concerned

- EN 353-1:2002 Personal protective equipment against falls from height – Part 1: Guided type fall arresters including a rigid anchor line

III – Details of the disputed parts of the standards and the basic health and safety requirements that would be affected

- Part 4.7 Marking and information. Instructions for use requirements are inadequate, meaning that the devices could be used in circumstances that are dangerous.
- Part 5 Test methods (reference EN 364: 1992). Research has shown that the test method used does not test for the essential performance aspects that will be encountered during foreseeable conditions of use.

The basic health and safety requirements (Annex II of Directive 89/686/EEC) concerned are:

- Requirement 1 requires PPE to provide adequate protection against all risks encountered.
- Requirement 1.1.1 requires PPE to be so designed and manufactured that in the foreseeable conditions of use for which it is intended the user can perform the risk related activity normally whilst enjoying appropriate protection to the highest possible level.
- Requirement 1.3.3 requires different types of PPE designed for simultaneous use to be compatible.
- Requirement 1.4 particularly (a)&(d) requires the manufacturer to supply all relevant information on the use and corresponding limits of use.
- Requirement 3.1.2.2 requires PPE to be designed so that under the foreseeable conditions of use the vertical drop of the user is minimised to prevent collisions with obstacles and the braking force does not attain the threshold value at which physical injury or the tearing or

rupture of any PPE component which might cause the user to fall can be expected to occur.

IV – Indication of type of product concerned

These devices are used with fixed ladders or rungs attached to fixed structures. The system will have a rigid anchor line connected to and running the length of the ladders or structure (see Figure 1). The user is attached to the anchor line by a self-locking guided type fall arrester, which travels with the user as they ascend or descend. The guided type fall arrester is attached to the user's harness via a short lanyard. The system will have energy absorption within it either via the lanyard or fall arrester (or both). If a person falls while using the system, the guided fall arrester should detect the fall and lock onto the rigid or flexible anchor line, thereby safely arresting the fall.

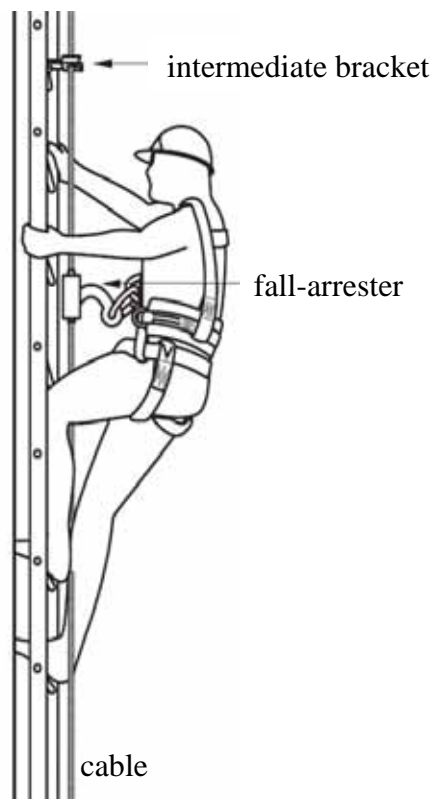


Figure 1. EN 353 Part 1 rigid anchor line

V – Detailed arguments justifying why the standard is being contested in relation to the Directives provisions

The UK has conducted two research projects which have revealed problems with the standard. They are:

- 'Preliminary investigation into the fall-arresting effectiveness of ladder safety hoops' (RR258) (2004). Available at <http://www.hse.gov.uk/research/rrhtm/rr258.htm>
- 'Investigation into the fall-arresting effectiveness of ladder safety hoops, when used in conjunction with various fall-arrest systems' (2007)

There is a significant risk that the products can fail because the test method prescribed by EN 353-1 does not test for reasonably foreseeable fall conditions such as a 'fall back' or a sideways fall. Both these fall conditions are foreseeable, given the circumstances in which the devices are used.

EN 353 Part 1 Guided type fall arresters including a rigid anchor line.

Fatal and serious injuries have been recorded with the use of this type of equipment in Austria, Belgium, France, Germany and the Netherlands since 2002. Most recently, a product allegedly conforming to EN 353-1 was tested following an accident in the UK. This product failed to meet the test requirements stipulated in BS EN 353-1:2002. The device also failed to operate successfully during the additional 'fall back test'. Further information can be found at <http://www.hse.gov.uk/falls/fixedrail011007.htm>. Note, the UK initiated a Product Safeguard action on this device.

UK Research, in 2004, revealed problems with 'backwards falls'. EN 353 Part 1 prescribes a vertical drop test, whereas during actual fall conditions the user tends to fall backwards first and not downwards. (See Figures 3 and 4).

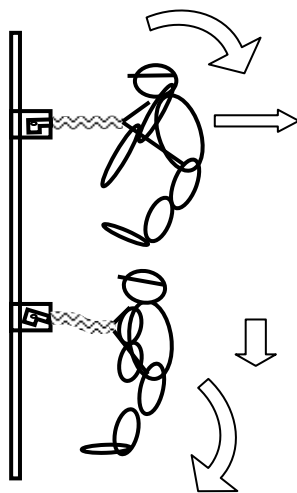


Figure 3. Natural backwards fall

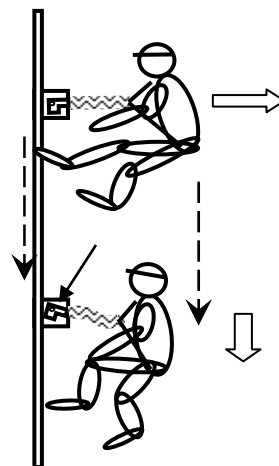


Figure 4. Backward fall increased by contact with ladder

UK testing has revealed that guided type fall arresters have either failed to engage with the line, or have allowed excessive fall distances before engagement. Both conditions could result in fatal or serious injury to the user because of collisions with obstacles or exposure to excessive braking forces.

The self-locking mechanism on the guided type fall arrester may be unable to detect a fall backwards motion, as it is type-tested to lock as a result of an immediate vertical drop. This results in a delay in its operation. The only drop test prescribed by EN 353 is a vertical one.

This issue has been raised with the CEN Technical Committee (TC160) responsible for the standard. In 2007, The UK proposed an interim test method (based on a former British Standard, BS 5062, which included a test for 'backward falls'), but this was rejected by TC160. The UK, concerned about this, wrote to TC160 requesting that the standard be withdrawn because of their concerns that the standard was deficient and did not meet the basic health and safety requirements of the PPE Directive. TC160 remarked that as the standard was harmonised, its status could only be challenged by a member state raising a Formal Objection.

The devices have therefore, not been tested to protect against all foreseeable conditions of use.

In addition, the absence of adequate user instructions in EN 353 Part 1 does not satisfy the directive's provisions for providing relevant information on safe use. Research has revealed further problems to that listed above, including:

- The unsuitability of the system for work positioning applications where the worker is using the system to lean back to perform a given task at a work position, rather than using the system as intended which is for protection during the ascent or descent of the structure. EN 353 Part 1 contains no warning to prohibit such an application, despite it being a foreseeable condition of use. If the worker fell during work positioning the same 'backwards fall' condition would apply.
- In the absence of any warning in EN 353 Part 1, in the form of information supplied by the manufacturer on safe use, the standard assumes that the user will attach or detach to the vertical rigid rail from a place of safety, eg at ground level or a working platform. This is not always possible, eg on a pylon or a mast, where access may start at a raised level to prevent unauthorised access. In such circumstances, the standard does not make explicit that an end stop be provided to stop the guided type fall arrester running off the bottom of the system resulting in a free fall of the user. Fatal accidents in the EC have been attributed to this situation.
- User instructions do not specify or warn that devices fitted with an override or release facility to deactivate the locking function should only be activated when the user is in a safe position.

Conclusions

EN 353 Part 1 is deficient, as a result of a testing regime that does not reflect conditions of foreseeable use. The test method advocated by EN 353 uses a test mass which does not reproduce the interaction that a users limbs, particularly legs, will have with a ladder, in that a fall back is more likely and foreseeable in a real fall arrest situation. This can introduce a delay in lock on with dangerous arrest forces or a failure to lock on at all. This is compounded by the absence of adequate user instructions. The basic health and safety requirements listed by the Directive in Part III above, have therefore not been complied with. Products are being marketed and used in circumstances for which they have not been tested and as a result, they are not safe.

EN 353 Part 1 cannot be used to presume conformity with Directive 89/686/EEC.

VI – Action requested

The consequences of failure of such equipment is likely to be a fatality or serious injury therefore, we believe it is reasonable to withdraw the presumption of conformity. A new standard is required, which reflects the foreseeable conditions of use. The new standard will also need robust user instructions, including pictograms, which clearly indicate safe use and prohibited misuse. In the short term, we are happy to work with others to agree an interim position which will ensure compliance with the basic health and safety requirements of the Directive.

It is recommended that tests that better represent possible fall scenarios or modes such as 'falling backwards' and 'falling side ways' (with pass/fail criteria) are included in an amendment to EN 353 Part 1. A consideration of different user weights may also be necessary. This is to ensure that sliding fall arresters on vertical rails placed on the market, and intended for use on fixed ladders, have fall arrest performance assessed to ensure that it is within satisfactory limits. EN 353-1 does not presently address fall arrest performance for foreseeable fall scenarios such as falls backwards or sideways from a ladder.

Recommendations

Detailed recommendations are included in the research reports listed in part V above and include recommendations for tests fall backwards and sideways. A former British standard (BS 5062) could be used as a basis for developing such tests.

Currently UK Government is carrying out additional research to develop a suite of tests that could be used to assess the fall-arresting performance of EN 353-1 devices. When finalised, we would be happy to share this information.