	CO-ORDINATION OF NOTIFIED BODIES **PPE Regulation 2016/425** **RECOMMENDATION FOR USE**	PPE-R/11.124 Version 4

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Question related to ☒ PPE Regulation ☐ PPE Guidelines	☒ EN/prEN EN 360:2002	☐ Other:

Article:	Annex:	Clause:

Key words:

Retractable type fall arresters, twin, horizontal use

Question:

How shall retractable type fall arresters ("RTFA") with 2 retractable lanyards (two devices connected with an adapter) attached to the full body harness be assessed?

Solution:

1 General requirements

Each single retractable type fall arrester shall comply with EN 360:2002.

2 Additional requirements / tests

2.1 Design requirements

- Both retractable lanyards/devices shall be identical (design, material, dimensions, length,…).
- The complete length of the retractable type fall arrester including connectors L has to be limited to L≤2.5 m.
- The lanyards must be of textile materials to avoid severe injuries in case of a fall.
- If the manufacturer claims horizontal use on twin RTFA, test 2.3 of this RfU shall be repeated following 4.4 (Dynamic Performance tests) of PPE-R/11.060.
  Note:
  Twin RTFA with one energy absorbing element: horizontal test with one leg (to be repeated if the two legs are different)
  Twin RTFA with energy absorbing element at each leg: horizontal test with one leg (to be repeated if the two legs are different) and both legs

2.2. Dynamic performance test with one lanyard attached

Attach one fully extracted lanyard to a rigid anchor point. Connect the harness attachment point including a load cell to a test mass equal to the maximum rated load but not less than 100 kg and raise the mass twice the maximum length of the device. Release the test mass and record the braking force F_{max} and the arrest distance H.

Requirement: F ≤ 6 kN and H ≤ 2L + 1.75 m and H ≤ 5,75m

Note: This method takes into account the foreseeable misuse of free fall, by climbing above the anchor point.

2.3 Dynamic performance test with both lanyards attached to the same anchor point

Attach both fully extracted lanyards to a rigid anchor point. Connect the harness attachment point including a load cell to a test mass equal to the maximum rated load but not less than 100 kg and raise the mass twice the maximum length of the device. Release the test mass and record the braking force F_{max} and the arrest distance H.

Requirement: F ≤ 6 kN and H ≤ 2L + 1.75 m and H ≤ 5,75m

Note: This method takes into account the foreseeable misuse of free fall, by climbing above the anchor point with both lanyards connected to the same anchor point.

2.4 Dynamic performance test at near full extraction
Attach one fully extracted lanyard to a rigid anchor point. Connect the harness attachment point including a load cell to a test mass equal to the maximum rated load but not less than 100 kg and raise the mass 250mm. Release the test mass and record the braking force Fmax and the arrest distance H.

Requirement: Fmax <6 kN and H <1.4m

Note: This method is used to test the behaviour of the end stop. The arrest distance of 1.4m results from the EN 360:2002 clause 4.5 requirement of 2.0m minus 0.6m because there is no free fall.

2.5 Dynamic performance test with both lanyards attached to different anchor points
Attach each lanyard to a separate rigid anchor point with a horizontal distance of 1.5 times the maximum length of the retractable type fall arrester (e.g. 2m device = 3.0m distance). Connect the harness attachment point including a load cell to a test mass equal to the maximum rated load but not less than 100 kg and raise the mass until the lanyards are fully extended. Release the test mass and record the braking force Fmax and the arrest distance H.
Requirement: $F \leq 6$ kN and $H \leq 2L + 1.75$ m and $H \leq 5{,}75$m

Note: This method takes into account the foreseeable misuse of free fall, by climbing above the anchor point if both lanyards are connected to different anchor points.

2.6 Static strength test of the retractable lanyard
Apply a force of 22kN for 3 minutes on the retractable lanyard only. (A test specimen including suitable terminations can be submitted by the applicant.)

Requirement: The lanyard shall sustain the load without failure.

2.7 Ergonomic test
Carry out an ergonomic test with two persons of different height and weight within the range of 160 cm to 190 cm and within the range of 60 kg to 95 kg, wearing lightweight clothing and a full body harness conforming to EN 361:2002. The test persons examine the ergonomic and functional behavior of the device when climbing (up- and downwards, horizontal, diagonal) in a suitable construction (ladder, modular scaffolds, …).
Check if there are any additional risks for the user (e.g. housing could hit the head).

2.8 Retraction function with rotation test (4.1.1/5.3.5 of prEN 360 – TC160/WG2 doc N770)
5.3.5.1 Suspend the twin RTFA to a non-rotating anchor point and fully extract the retractable lanyard(s) and allow the lanyard(s) to fully retract in a controlled manner.
5.3.5.3 For a twin RTFA extract (1000 ± 10) mm of the retractable lanyards. Rotate the twin RTFA housing attachment point ten full turns. Allow the lanyards to retract. The lanyard retraction and any untwisting shall be unassisted and controlled by hand resistance to prevent uncontrolled take-up of the lanyard by the RTFA. Check that the lanyard fully retracts. Perform the test in 5.3.5.2 (*) on each lanyard. If applicable, repeat the test for each direction claimed by the manufacturer.
(*) : 5.3.5.2 For a RTFA extract (300 ± 10) mm of the retractable lanyard. Rotate the end termination of the retractable lanyard or the RTFA housing attachment point ten full turns. Allow the lanyard to retract. The lanyard retraction and any untwisting shall be unassisted and controlled by hand resistance to prevent uncontrolled take-up of the lanyard by the RTFA. Check that the lanyard fully retracts. If applicable, repeat the test for each direction claimed by the manufacturer.

Requirement: The retractable lanyard(s) shall fully retract.

3 Instructions for use
In addition to conforming to EN 360:2002, the information shall include advice or information as follows:
- Advise that the unit must only be attached to the fall arrest attachment element at the back of the full body harness.
- Information on the intended use the device is designed for (e.g. vertical and horizontal movement in high-rack warehouses, assembly and dismantling of industrial scaffoldings, vertical climbing on two spar ladders or crampons courses, ...).
- Advice that the anchor points at the building or structure shall be at least at waist height. In exceptional cases, the anchor point may be also lower, but not lower than the height of the user's prior level. These exceptions are for example use in container assembly, on flat roofs, in erection of steel structures where larger distances are present between the anchor points due to construction.
- A warning about the risk of injury to the neck and head by the device and the lanyard.