Australian Standard™

AS 2362.16

Fire detection, warning, control and intercom systems—Methods of test

Method 16: Impact test

1 SCOPE

This Standard sets out the test method for evaluating the effects of impact on actuating device operation (see performance requirements in the appropriate device Standard).

2 PRINCIPLE

The actuating device is subjected to a specified impact, checked for damage and monitored for alarm or fault state.

3 APPARATUS

Suitable apparatus for the impact test is illustrated in Figure 1. Alternative apparatus which applies an equivalent impact to the actuating device may be used.

The apparatus (see Figure 1) consists essentially of a swinging hammer comprising a rectangular section head (striker), with a chamfered impact face, mounted on a tubular steel shaft. The hammer is fixed into a steel boss, which runs on ball bearings on a fixed steel shaft mounted in a rigid steel frame, so that the hammer can rotate freely about the axis of the fixed shaft. The design of the rigid frame is such as to allow complete rotation of the hammer assembly when the specimen is not present.

The striker is of dimensions 76 mm wide × 50 mm deep × 94 mm long (overall dimensions) and is manufactured from aluminium alloy. It has a plane impact face chamfered at 60 ±1° to the long axis of the head. The tubular steel shaft has an outside diameter of 25 ±0.1 mm with walls 1.6 ±0.1 mm thick.

The striker is mounted on the shaft so that its long axis is at a radial distance of 305 mm from the axis of rotation of the assembly, the two axes being mutually perpendicular. The central boss is 102 mm in outside diameter and 200 mm long and is mounted coaxially on the fixed steel pivot shaft, which is approximately 25 mm in diameter, however the precise diameter of the shaft will depend on the bearings used.

Diametrically opposite the hammer shaft are two steel counter balance arms, each 20 mm in outside diameter and 185 mm long. These arms are screwed into the boss so that the length of 150 mm protrudes. A steel counter balance weight is mounted on the arms so that its position can be adjusted to balance the weight of the striker and shaft. On the end of the central boss is mounted a 12 mm wide × 150 mm in diameter aluminium alloy pulley and round this an inextensible cable is wound, one end being fixed to the pulley. The other end of the cable supports the operating weight.

In case of a dispute, the result shall be taken to be that which is obtained from apparatus complying with Figure 1.

NOTE: The mass of the operating weight to produce the required impact energy of 1.9 J equals approximately 0.55 kg. In order to achieve a hammer velocity at impact of 1.5 ±0.1 m/s, the mass