Indian Standard (Reaffirmed 2006)

SPECIFICATION FOR INTERMITTENT POSITIVE PRESSURE RESPIRATOR, BAG TYPE, MANUALLY OPERATED

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NEW DELHI 110002

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0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 15 June 1971, after the draft finalized by the Anaesthesia, Resuscitation and Allied Equipment Sectional Committee had been approved by the Consumer Products Division Council.

0.2 This standard has been formulated at the instance of the Advisory Committee for Development of Surgical Instruments, Equipment and Appliances, Government of India.

0.3 This standard is one of a series of Indian Standards on diagnostic and anaesthetic equipment.

0.4 This standard contains clauses which call for agreement between the purchaser and the supplier. The relevant clauses are 4.1 and 6.1.

0.5 **For the** purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS :2-1960*. The number of significant places retained in the **rounded off** value should be the same as that of the specified value in this standard.

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1. SCOPE

1.1 This standard prescribes the requirements for manually operated bag type intermittent positive pressure respirator **used for artificial respiration and resuscitation.**

2. MATERIALS

2.1 Bag — The hag shall be made of good quality natural ruhher which when tested for ageing in an air-oven for 168 hours at 70 ± 1°C does not show appreciable stiffening, softening and cracking or any other

*Rules for rounding off numerical values (*revised*).

change in condition. The rubber used shall have minimum tensile strengths of 105 and 95 kgf/cm² (10 and 9·3 MN/m²) and minimum elongations at break of 400 and 300 percent before and after ageing respectively. Suitable plastics or polymer materials may also be used.

2.2 Connection Tube -Any suitable material may be used for the connection tube.

3. WORKMANSHIP AND FINISH

3.1 The bag shall be adequately reinforced at the neck, and the wall of the bag except for the reinforced areas shall be of uniform thickness. The surfaces of the bag shall be smooth and free from pinholes, wrinkles, creases, embedded foreign matter and other defects. All the metallic parts shall be plated chromium over nickel in accordance with Service Grade No. 2 of IS :1068-1968*.

4. REQUIREMENTS

4.1 Rubber face masks shall in every respect conform to IS :6190-1971†. Alternatively, face masks made of suitable transparent material and satisfying the requirements of 5 and 8 of IS : 6190-1971 † may be used.

4.2 The respirator shall be fitted with a non-rebreathing valve made of sturdy and unbreakable clear plastics material. When the bag is pressed, air shall flow to the patient through the valve and the face mask. When the bag is released, the valve shall open towards outside and expiration shall take place with least resistance. During the expiration phase, air shall automatically fill in the bag. The valve at any stage shall not stick.

4.3 The face mask end of the valve shall have male conical fittings of the adult size conforming to IS :5413-1969‡.

4.4 The inlet shall be provided for connection to an oxygen source. The tube shall have an additional arrangement for preventing air to escape into the atmosphere when the bag is squeezed.

4.5 Outer size of the bag shall be such that it can be grasped easily with one hand. The bag shall be self-inflating and shall resume its original shape after each depression. The bag shall be smooth and shall not hurt the finger tips. The operation of the respirator shall be effortless and the hand fatigue shall be negligible.

***Specification for electroplated coatings of nickel and chromium on iron and steel (*first revision*).**

†Specification for anaesthetic face masks.

‡Specification for conical fittings for to-and-fro carbon dioxide absorber (Waters type) for use with gas anaesthetic apparatus.

4.6 The axial length of the neck of the bag shall be not less than 50 mm. The thickness of the rubber forming the neck of the bag shall be not less than 2·5 mm.

4.7 When-the opening of the bag is closed securely, the bag immersed in **water and** pressed, there shall be no sign of escape of air through any part of the bag.

4.8 **The bag shall be capable of** withstanding exposure to saturated steam **at a temperature of 134°C corresponding** to a gauge pressure of 2·2 kgf/cm² **for not less than 20 minutes in a sterilizer without loss of shape or other significant deterioration.**

4.9 When manually operated, the respirator shall deliver a tidal air of volume 1 200 to 1 600 ml.

5. MARKING

5.1 The respirator shall be marked with the manufacturer's name, initials or trade-mark on the bag.

5.1.1 The respirator may also be marked with the Standard Mark.

NOTE — **The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may he granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.**

6. PACKING

6.1 The packing shall be done as agreed to between the purchaser and the **supplier. It is however recommended that the various parts of the respirator should be dismantled and packed in a strong carrying case.**

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