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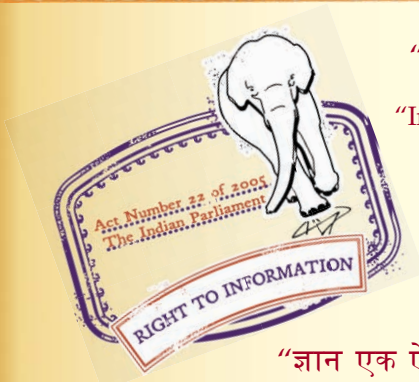
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“पुराने को छोड़ नये के तरफ”

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IS 957 (1967, Reaffirmed 2005): Specification for Control Van for Fire Brigade Use. UDC 614.48 : 629.1-471 : 629.114



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

REAFFIRMED

IS : 957 - 1967

REAFFIRMED

2005

Indian Standard
SPECIFICATION FOR
CONTROL VAN FOR FIRE BRIGADE USE

UDC 614·84 : 629·1—471 : 629·114



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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 1

Price Rs 5·00

Gr 4

January 1968

AMENDMENT NO. 3 DECEMBER 1977

TO

IS:957-1967 SPECIFICATION FOR CONTROL
VAN FOR FIRE BRIGADE USE

Alteration

(Page 6, clause 4.3, last sentence) -
substitute the following for the existing
sentence:

'There shall be two fuel pumps, one of
which shall be mechanically operated
and shall preferably be provided with
hand-operated device.'

BDC 22)

AMENDMENT NO. 2 DECEMBER 1975

TO

IS:957-1967 SPECIFICATION FOR CONTROL VAN
FOR FIRE BRIGADE USE

Alteration

[Page 12, clause 10.1(b)] - Delete and
re-number 'c)' as 'b)'.

BDC 22)

Reprography Unit, ISI, New Delhi

AMENDMENT NO. 1 JULY 1975
TO
IS : 957-1967 SPECIFICATION FOR CONTROL
VAN FOR FIRE BRIGADE USE

Alterations

(*Page 7, clause 4.4.1, third sentence*) — Substitute ' IS: 7372-1974* '
 ' IS: 985-1962* '.

(*Page 7, foot-note*) — Substitute the following for the existing foot-
note:

' Specification for lead-acid storage batteries for motor vehicles. '

(*Page 10, clause 5.3*)

a) *Line 4* — Substitute ' 25° ' for ' 35 degrees '.

b) *Last line* — Delete the words ' and preferably... ..horizontal '.

BDC 22)

Printed at Printograph, New Delhi, India

Indian Standard

SPECIFICATION FOR CONTROL VAN FOR FIRE BRIGADE USE

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IS : 957 - 1967

(Continued from page 1)

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Indian Standard

SPECIFICATION FOR CONTROL VAN FOR FIRE BRIGADE USE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 7 December 1967, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

0.2 Control van is used as a mobile control at the time of serious fires or other allied incidents. It provides the officer-in-charge of a fire area with an advance control room or mobile office which can be set up on the fire ground. By this means administrative problems are eased and the officer-in-charge can be contacted without delay and may more easily co-ordinate the operations on the fire ground.

0.3 This standard contains clauses **8.1** and **9.2** which call for agreement between the purchaser and the supplier or the manufacturer.

0.4 In the formulation of this standard due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

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.

1. SCOPE

1.1 This standard lays down requirements regarding material, design, and construction, workmanship and finish, accessories and equipment and acceptance tests of control van for fire brigade use.

2. GENERAL REQUIREMENTS

2.1 The general requirements are given below:

- a) It shall be fully mobile and of such a size as to accommodate equipment and all accessories required for a control van and a crew of six

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

including the officer-in-charge of the unit and the driver during night.

- b) It shall be readily identifiable during night as well as during day time.
- c) It shall be capable of keeping the officer-in-charge in verbal contact with his control room either by field telephone or by VHF equipment.
- d) It shall be equipped with sufficient number of city maps, charts, including water resources, black board writing material, and suitable arrangement for installation and stowage of wireless sets including batteries to enable the fire operations to be controlled successfully and contact to be maintained with crews and personnel operating on the fire ground.
- e) It shall be of enclosed type and shall be fitted with a towing eye for a trailer pump.
- f) Arrangement for adequate lighting and message hatches shall also be made.
- g) Provision shall be made for amplifier, loudspeaker and microphone, that the officer-in-charge can communicate orders to personnel on the fire ground.
- h) The standard marking for day identification shall be a red and white chequered dome on top. The dome shall be illuminated at night. In addition, the chequered lighted dome may be raised up to 2 m on a telescopic mast, fitted to one side of the appliance, when it is in use.

2.2 Road Performance

2.2.1 The appliance shall be suitably geared to provide a road speed of at least 70 km/h on a level road. The acceleration shall be such that with a warm running engine, the fully laden appliance shall attain a speed of 65 km/h from a standing start, through the gears, in a maximum time of 55 seconds.

2.2.1.1 The appliance shall also be capable of being started from rest up a gradient of 1 in 4 when fully laden.

2.2.2 The service (foot operated) braking system shall be such as to stop the fully-laden appliance within 17 m from the point at which the brake is applied when travelling at 50 km/h along a level, dry road. The hand brake system shall be capable of holding the fully-laden appliance stationary on a dry-surface gradient of 1 in 4, when in neutral gear.

2.2.3 If the brakes are of air-assisted type which derive their power from a high pressure reservoir, a warning device shall be fitted in the driving compartment which will operate when the pressure in the reservoir drops

below 3.5 kg/cm^2 . The rate at which this pressure loss occurs shall not exceed $0.07 \text{ kg/cm}^2/\text{h}$ for the first 12 hours after the reservoir has been charged to its maximum working pressure. Where air hydraulic or full air-pressure brakes are fitted, a satisfactory anti-freezer shall be provided.

3. MATERIAL SELECTION AND TREATMENT

3.1 The choice of material to be used in the construction of the appliance shall be made with a view to combine lightness with strength and durability.

3.2 The appliance may be required for use under conditions of high humidity and heat. This shall be given full consideration while selecting the materials and for this reason use of rubber shall be avoided as far as possible. Where it is unavoidable to use rubber, the parts made out of it shall easily be replaceable and shall be readily available.

3.3 All parts which form waterways or come into contact with water shall be of corrosion-resisting material. All metal parts exposed to atmosphere shall either be of corrosion-resisting material or treated suitably.

3.4 Ferrous metal shall not be used for nickel or chromium plated fittings and the plating of all such fittings shall be of extra heavy quality.

4. DESIGN AND CONSTRUCTION

4.1 Chassis

4.1.1 The chassis shall be designed for carrying a load which exceeds the estimated maximum load (including loose equipment detailed in Appendix A and crew) by not less than 250 kg. The estimated maximum load shall not exceed the pay load of the vehicle. It shall be taken into account that the appliance stands laden throughout most of its life. The wheel base shall not be less than 4.35 m and the overall width shall not be less than 2.30 m. Turning circle shall be as small as possible, but preferably not more than 20 m on either lock. The road clearance shall not be less than 23 cm.

4.1.2 The chassis shall be either a four-wheeler or a six-wheeler preferably with a four-wheel drive if available with arrangements for the drive to front axle being disengageable to afford better transmission of load-moving power to the vehicle. The lubricating nipples shall be located at accessible and protected positions where nipples are not fitted on or adjacent to their bearings and are connected to them by pipes, plates on the nipples shall be provided to indicate the points which they serve. Drag hooks or eyes shall be fitted to each chassis member at front and rear. Forward or semiforward central driving position shall be preferred. Scuttle and radiator support shall be designed so as to permit easy removal of the engine without need to remove any part of the body structure or chassis. The

engine exhaust shall be arranged to discharge on the off side, as far away as possible, and shall not cause over-heating of any part of the engine or chassis.

4.1.3 The gear box shall have a minimum four speeds forward and one reverse. Means shall be provided to determine with reasonable accuracy the oil-level in the gear box, preferably by means of a dip-stick.

4.2 Engine

4.2.1 The engine whether petrol or oil fuel type (compression ignition) shall be capable of developing not less than 71 kW brake power at maximum rev/s and shall have six or more cylinders. In the case of a petrol engine it shall preferably be provided with duel coil ignition. Means shall be provided to ensure reliable and quick starting up of the engine, and in addition to an electrically operated starter of adequate power, a well designed hand starting device shall be provided. The engine shall be capable of driving the fully-laden appliance at speed from starting-up without any preliminary running period, even under abnormal cold atmospheric conditions, having immersion heaters in the oil and water circuits when necessary to enable this requirement to be fulfilled. Any immersion heater in oil sump shall be not of such type or capacity as to cause carbonization. The operating temperature of the engine cooling water shall be thermostatically controlled.

4.2.2 Ignition systems on petrol engines shall be efficiently suppressed either by special HT leads or by other appropriate means.

4.2.3 The cooling capacity of the radiator shall preferably be such as to permit prolonged stationary running of the engine without over-heating.

4.2.4 Suitable temperature indicating gauge for cooling water and oil-pressure gauge or indicating light for the lubricating system shall be provided on the instrument panel in the compartment. An ammeter or a warning glow lamp shall also be provided in the driver's cab for the ignition system of the engine.

4.2.5 The engine lubricating system shall be provided with an external filter and means to gauge with reasonable accuracy the level of the oil in the sump, preferably by a tubed dip-stick.

4.3 Fuel System — The fuel tank shall have a capacity of not less than 90 litres and a fuel tank contents gauge shall be fitted on the instrument panel in the driving compartment. The filling orifice shall be of ample size, and shall be in an accessible position. The cap shall be clearly marked to show that it is for fuel, and where the fuel is petrol, an antflash device shall be incorporated. There shall be two fuel pumps in the case of petrol engine, one of which shall be mechanically operated and the other shall be electrically operated.

4.4 Electrical Equipment

4.4.1 The electrical system may be either 12 or 24 V. In either case, there shall preferably be two heavy duty batteries connected in series. The batteries shall conform to IS : 985-1962*. The batteries shall be fitted in an accessible position and there shall be some permanent provision for recharging *in situ* from an external electric supply. The batteries shall not be coupled in parallel. The plug and socket for this shall be different from that of any immersion heater. A red pilot lamp indicating when the batteries are being charged from an external supply shall be provided. The charger shall be fitted with automatic cut-out to operate when the battery is fully charged. The socket for connection to the external supply shall be so fitted that the plug will pull itself out without damage to leads if it is inadvertently left in before moving the vehicle.

4.4.2 The dynamo shall be of the heavy-duty type.

4.4.3 All important electrical circuit shall have separate fuses suitably indicated and shall be grouped into a common fuse-box located in an accessible position, and fitted with means for carrying spare fuses.

4.4.3.1 The wiring shall be single-pole with positive earth.

4.5 Extra Electrical Equipment

4.5.1 *Portable Generator* — For the purpose of extra lighting, a 10 kVA ac single-phase portable alternator shall be provided and mounted so as to be accessible for maintenance. It shall be of the enclosed type and close regulation at all loads shall be provided. The voltage shall be 230. The generator selected shall be designed to give the best possible automatic voltage control with some variations of load and speed. Hand-voltage control shall also be provided.

4.5.1.1 *Junction box-water-tight* — Junction boxes, each fitted with one feeder-plug, and four distribution sockets, shall be required.

4.5.1.2 *Plugs and sockets* — All plugs and sockets shall be of the 15-A three-pin, metal-clad-water-tight pattern. The third pin and the body shall be connected to earth.

4.5.2 *Control Panel* — A panel carrying the necessary control gear, fuses and instruments shall be provided on the generator. The panel shall be provided with suitable guards.

4.5.2.1 The switch gear shall be of the water-tight pattern and the function of each switch shall be clearly indicated.

4.5.2.2 There shall be not less than four plug points each comprising a double pole isolating switch and a three-pin plug socket. Each isolating switch shall also control a circuit to a cable reel plug-socket in its appropriate locker.

*Specification for lead acid storage batteries (heavy duty) for motor vehicles.

4.5.2.3 Fuses shall be of the cartridge type preferably, the auto-rupture indicating pattern and each distribution circuit shall be separately fused.

4.5.2.4 A revolution-indicator and an auxiliary throttle control for the engine shall also be provided on the panel frame.

4.5.3 *Wiring* — All wiring to control or distribution points shall conform to IS : 732-1962*.

4.5.4 *Portable Cable Reels* — Five portable cable reels shall be provided one of which shall hold 100 m of three-core flexible armoured, round tough rubber and each of the four armoured holding not less than 50 m of similar cable.

4.5.4.1 The design of the reels be such that whether they are 'on' or 'off' the appliance, cable may be used in any length up to the full capacity of the reel. They shall be mounted on feet, shall have ship-ring contacts, and short 'tail' cables with plugs to couple to feeder-sockets in the lockers and in the case of the small reels, for coupling in series.

4.5.5 *Wiring Circuit* — To provide maximum safety, the wiring circuit shall be fully insulated. The normal earth wire of the three-core cable shall be connected to the frame of the tool and the earth pin of the plug in the normal manner, but sockets on switch board or in junction boxes, instead of being earthed shall be coupled together by a bus-bar or equivalent.

5. BODY WORK AND STOWAGE

5.1 General

5.1.1 Enclosed accommodation for men and driver, shall be provided. The design of the cab shall be such that it shall afford maximum possible vision for the crew and shall ensure adequate ventilation to avoid discomfort to crew under tropical conditions.

5.1.2 Lockers, racks or other suitable accommodations shall be provided for all the equipment, charts, maps, boards, etc. The design of lockers and racks shall be arranged to give a pleasing appearance to the appliance without sacrificing functional requirements. Lockers shall be provided at a height of 1.5 to 1.8 m from ground level so as to be easily accessible to a man of average height. Doors shall open in such a manner that they offer no hazard to personnel in the open position and any stays or supports can be released by one man to close the doors. Lockers having external access shall be weather-proof and self-draining to release all water following wash down.

5.1.2.1 All lockers shall be fitted with internal lighting which shall be capable of being automatically switched 'on' and 'off' by the opening and

*Code of practice for electrical wiring installations (system voltage not exceeding 650 volts) (*revised*).

closing of the doors or lids. A master switch for insulating the locker lighting circuit shall also be provided.

5.1.2.2 An indicator shall be provided on the dash-board for the locker lights so that when any locker is left open inadvertently or gets opened when the vehicle is in motion, the indication light on the instrument panel will come 'on'.

5.1.3 The body shall be constructed on steel frame-work with aluminium sheets externally and the inside panelling will be done with good quality teak wood. Insulating material may be provided between the inner and outer covering if required. The entire flooring shall be of aluminium chequered sheet.

5.1.4 The construction of the roof shall be such that it is capable of supporting the weight of one man without damage. A 250 mm diameter carillon bell conforming to IS : 928-1964* shall be fitted on metal brackets over the roof with lever arrangements to operate the same from inside the crew compartment. Grab rails and non-slip steps shall be provided so as to afford access to the roof of the appliance.

5.1.5 Provision for two hatches of 1.5 m length and 0.75 m width on each side shall be made. These hatches should be in front of the writing desk in the rear compartment.

5.1.6 Two doors at the rear or at side shall be provided to the crew compartment supported on hinges and built out of aluminium sheet with proper door handle and latch. Upper half of the door shall be fitted with movable glass in channels and operating on window.

5.1.7 Two glass windows, preferably of the sliding glass type shall be provided at the rear.

5.1.8 Wooden cupboard with drawers leaving sufficient opening for the driver to view the rear through the sliding window while reversing the vehicles shall be provided. Space shall also be provided, on two sides of the cupboards for fixing wireless set and extra batteries. Opening with sliding window shall also be provided between the space provided for wireless set and the driver's compartment.

5.1.9 There shall be seven sky lights fitted on the side wall of the roof. Three on either side of the rear compartment fitted with perspex not less than 5 mm thick and 37 cm × 60 cm size.

5.1.10 Driving Compartment— The design of the driving compartment shall afford maximum possible vision for the driver, and the driver's seat shall be adjustable and preferably of the 'bucket' type. Doors shall be provided on both sides of the appliance giving ready access. If the

*Specification for fire bell (*revised*).

doors are hinged and open outwards, they shall be hung forward and shall have locks with double-catch striking-plates. The doors or door locks shall be so designed as to prevent their being opened inadvertently from the inside.

5.1.11 Where necessary, non-slip steps and grab rails handles shall be provided to assist the driver and crew in mounting and dismounting speedily. All glasses fitted in windows shall be safety glasses. Dual sunvisors and long arm outside fitting type rear view mirror shall be fitted to the cab. The engine bonnet shall be specially insulated to reduce heat inside the cab. Provision for a spare wheel shall be provided.

5.2 Tool Kit Container — A specially fitted-recessed tray for the normal kit of tools carried on the appliance shall be provided.

5.3 Stability — The stability of the appliance shall be such that when under fully equipped and loaded conditions (but excluding crew) if the surface on which the appliance stands is tilted to either side, the point at which overturning occurs is not passed at an angle of 35 degrees from the horizontal, and preferably not passed at 37 degrees from the horizontal.

6. WORKMANSHIP AND FINISH

6.1 The standard of workmanship and finish of all mechanical parts shall be such that the parts normally required to be replaced can be supplied and that they shall fit in correctly without causing difficulty.

6.2 The appliance shall be painted fire-red (*see* colour No. 536 of IS : 5-1961*) in an approved manner.

6.2.1 The driving compartment, crew's compartment, inside the vehicle and inside lockers shall be painted cream. Lockers shall be finished in shadow board painting to show the position of each piece of equipment.

6.2.2 All other parts except engine shall be painted black.

6.2.3 Necessary anticorrosion and priming coats shall be applied before painting.

6.2.4 Painting and phosphating of the chassis shall be carried out to withstand the climatic conditions in the tropics.

7. INSTRUCTION BOOK, ACCESSORIES AND EQUIPMENT

7.1 Instruction Book or Books — An instruction book (or books) for the guidance of the user including both operating and normal maintenance procedures shall be supplied. The book (or books) shall include an

* Colours of ready mixed paints (*second revision*).

itemized and illustrated spare parts list giving reference number to all the wearing parts to ensure that adequate number of such spare parts are made easily available, when necessary.

7.2 Accessories — The following accessories shall be provided in addition to those normally fitted on modern commercial vehicles:

- a) *Fire Bells 250 mm Diameter F-Natural Tone Carillon* — Fire bells shall be mounted externally and shall be capable of being operated from within the driving compartment. If only one bell is fitted it shall be of the hand-operated type. If two bells are required, one shall be hand-operated, and the other may be either electrically or mechanically operated.
- b) *Head Lamps* — two, of not less than 20 cm in diameter and of design approved by the purchaser.
- c) *Fog Lamps* — two, low-mounted in front of appliance.
- d) *Reversing Light* — one, suitably situated to assist reversing.
- e) *Twin Amber Blinker Lights* — shall be situated on head of the driving compartment.
- f) *Defrosting Device* — For wind screens, where required.
- g) *Wind Screen Wipers* — shall be approved by the purchasers, if not provided with the chassis.
- h) *Tools* — All tools required for normal routine maintenance of the appliance which are not included in the kit for the chassis.
- j) *Connection for the Tail Light of Trailer* — an efficient twin wire socket and plug for connecting the cable for the tail-light of a trailer.
- k) *Search Light* — two, which shall be adjustable to give flood or beam light and shall be mounted in a convenient position and capable of being readily disconnected and mounted on a tripod away from the appliance; completely with tripod and with not less than 100 m of TRS cable on a reel mounted on the appliance. The capacity of the cable shall be such that the voltage drop shall be not more than 2 percent at the other end.
- m) *Spot Light-adjustable* — mounted in a convenient position on the near side of the driving compartment.
- n) *Inspection Lamp* — protected type on wander lead with plug. A socket shall be provided on the control panel in the driver's cab for plugging in the lamp.

7.3 Equipment — The appliance shall be provided with the equipment detailed in Appendix A. The equipment shall conform to appropriate Indian Standard specifications wherever they exist.

8. ACCEPTANCE TESTS

8.1 The appliance shall be subjected to the test given below. These tests may be made at manufacturer's works, fire brigade or elsewhere, as may be agreed to between the purchaser and the manufacturer.

a) *Road Tests*

- 1) Acceleration and performance tests shall be made to check fulfilment of the requirements laid under **2.2.1**.
- 2) Braking test shall be made to check fulfilment of the requirements laid under **2.2.2** and **2.2.3**.
- 3) Turning circle shall be made to check fulfilment of the requirements laid under **4.1.1**.

b) *Stability Test* — A tilting test shall be made to check fulfilment of the requirement carried in designed stowage condition.

c) All switchgear instruments and wiring shall be tested in accordance with the current Indian Electricity Rules.

NOTE — For the purpose of road tests (1) and (2) the fuel tank shall be full, and all the scheduled equipment carried in designed stowage position, unless it is mutually agreed that a test load may be carried in place of the equipment. The specified crew shall be on board or an equivalent load shall be carried instead. Road performance tests of the chassis as such shall be made with a test load equivalent to the estimated maximum load plus 250 kg.

9. MANUFACTURER'S CERTIFICATE AND GUARANTEE

9.1 The manufacturer shall provide a certificate to the effect that the appliance conforms to this Indian Standard in every respect.

9.1.1 The manufacturer's certificate shall not be necessary if the appliance bears the ISI Certification Mark (*see 10.1.1*) as the mark itself is a certificate of compliance.

9.2 The manufacturer shall guarantee the material, workmanship and operation of the appliance. The period of guarantee shall be as agreed to between the purchaser and the supplier.

10. MARKING

10.1 Each control van shall be clearly and permanently marked with the following information:

- a) Manufacturer's name or trade-mark, if any;
- b) Ref 'ISS 957'; and
- c) Year of manufacture.

10.1.1 The control van may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this 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 during production. This system, which is devised and supervised by ISI and operated by the producer, has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

APPENDIX A

(*Clauses 4.1.1 and 7.3*)

SCHEDULE OF EQUIPMENT TO BE SUPPLIED WITH THE APPLIANCE

<i>Item No.</i>	<i>Equipment</i>	<i>Quantity</i>	<i>Where Carried</i>
1.	Clock	1	In rear compartment
2.	Walkie-talkie sets (to operate on user's frequency)	4	do
3.	Transistorised loud hailer, dry cell type	2	do
4.	Binoculars, 8 × 30	1	do
5.	Receiver for fire alarm	1	Operational in rear compartment
6.	VHF radio telephone set, battery-operated (to operate on user's frequency)	1	do
7.	Revolving chair	1	do
8.	Battery-operated public address equipment, complete with two loudspeakers of suitable wattage (<i>see 6.1.1</i> of IS : 1032-1957*) mounted on cab roof, suitable amplifier and a portable hand-microphone on a hook near the folding control table.	1 complete set	do

*General requirements and tests for pressure unit operated horn loudspeaker systems.

INDIAN STANDARDS INSTITUTION

The Indian Standards Institution (ISI), which started functioning in 1947, is the national standards organization for India. Its principal object is to prepare standards on national and international basis and promote their general adoption.

The overall control of ISI, which is run and financed jointly as a non-profit making body by the Government and private enterprise, is exercised by the General Council, composed of representatives of Central and State Governments; leading trade, scientific and technological organizations; and subscribing members. The Union Minister of Industry is the ex-officio President of ISI.

The present technical activity of ISI is carried out through 8 Division Councils for Agricultural and Food Products; Chemical; Civil Engineering; Consumer Products; Electrotechnical; Mechanical Engineering; Structural and Metals; and Textile. All technical work relating to the formulation and revision of standards is done by committees appointed by and under the direction of their respective Division Councils. These committees consist of experts drawn from manufacturing units, technical institutions, purchase organizations and other concerned bodies.

To make available benefits of Indian Standards to the common man, ISI has introduced its Certification Marks Scheme under the *Indian Standards Institution (Certification Marks) Act, 1952*, as amended by the *Amendment Act, 1961*. According to this Act, quality goods conforming to Indian Standards can carry the ISI Certification Mark. This Mark is a third-party guarantee of quality of marked goods. Licences to use the ISI Certification Mark are granted to manufacturers using reliable methods of quality control subject to overall inspection by ISI.

In the international field, ISI represents India on the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC). ISO and IEC respectively link 54 and 40 countries, and function through 118 and 58 technical committees; ISI participates in 83 technical committees of ISO and all the technical committees of IEC. The committees and subcommittees of IEC and ISO for which ISI holds the secretariat deal with: Electric Fans, Lac, Mica, Pictorial Markings for Handling of Goods, Liquid Flow Measurements in Open Channels, Procedures for Inter-conversion of Values, Spices and Condiments, and Stimulant Foods.