

*Indian Standard*

GUIDE FOR SELECTION OF INDUSTRIAL  
SAFETY EQUIPMENT FOR EYE, FACE  
AND EAR PROTECTION

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INDIAN STANDARDS INSTITUTION  
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# *Indian Standard*

## GUIDE FOR SELECTION OF INDUSTRIAL SAFETY EQUIPMENT FOR EYE, FACE AND EAR PROTECTION

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# *Indian Standard*

## GUIDE FOR SELECTION OF INDUSTRIAL SAFETY EQUIPMENT FOR EYE, FACE AND EAR PROTECTION

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 14 March 1977, after the draft finalized by the Industrial Safety Advisory Committee had been approved by the Executive Committee.

**0.2** This standard is intended to guide workers and those in-charge of their safety in industrial operations in selecting such protective equipment for eyes, face and ear as will give the required protection against hazards likely to be encountered.

**0.3** Indian Standards published on safety equipment for protection of eyes, face and ear are given in Appendix A.

### 1. SCOPE

**1.1** This standard describes the hazards which call for the use of safety equipment for the protection of eyes, face and ears and provides guidance on the protection afforded against specific types of hazards by different types of protective equipment.

### 2. CLASSIFICATION OF HAZARDS RELATED TO EYE, FACE AND EAR PROTECTION EQUIPMENT

**2.1** Hazards against which protection equipment for eyes, face and ear should be used are given below:

<i>Code No. of Hazard</i>	<i>Protection Against Hazard</i>	<i>Typical Industrial Operations</i>
H-1	Impact	Chipping, caulking, sealing, grinding of metals, stone dressing; turning of cast iron and non-ferrous metals, etc
H-2	Dust	Sealing, grinding, handling of cement, clay, etc

<i>Code No.</i>	<i>Protection Against Hazard of Hazard</i>	<i>Typical Industrial Operations</i>
H-3	Splashes from metals	Babbling, pouring of lead joints, die casting, dipping in hot metals, pouring of molten metals, and foundry work
H-4	Splashes of liquids	Handling of acids, alkalis and other chemicals
H-5	Irritating gases and vapours	—
H-6	Reflected light and glare	Testing of lamps; sheet metal and lathe work
H-7	Injurious radiant energy	Oxy-acetylene welding and cutting, furnace work; electric arc welding; open hearth, bessemer and crucible steel making
H-8	Noise	—

### 3. SELECTION OF EQUIPMENT FOR DIFFERENT HAZARDS

3.1 Different types of eye, face and ear protection equipment should be selected keeping in view the hazards they can protect against. Guidance may be taken from the information given below:

<i>Code No. of Equipment</i>	<i>Brief Description of Equipment</i>	<i>Recommended Against Hazard Code No. ( see 2.1 )</i>	<i>Remarks</i>
E-1	Safety spectacles with side shields, safety lenses mounted in spectacle-type frame	H-1, H-6 and H-7	Spectacles may be fitted with clear, tinted, blue or welding filter glass lenses
E-2	Cup-type goggles. Two separate cupped eye pieces holding safety lenses and connected across the nose, and provided with head-band or harness	H-1, H-3, H-6 and H-7	Goggles may be fitted with clear, tinted, blue or welding filter glass lenses
E-3	Goggles a) With ventilation b) Without ventilation	H-4 H-4 and H-5	— —

<i>Code No. of Equip-ment</i>	<i>Brief Description of Equipment</i>	<i>Recommended Against Hazard, Code No. ( see 2.1 )</i>	<i>Remarks</i>
E-4	Dust goggles	H-2	—
E-5	One piece eye protectors ( Monogoggles )	H-1, H-2, H-3 H-4, H-6 and H-7	Should be capable of being used over prescription glasses
E-6	Faceshields	H-1, H-3, H-4 H-6 and H-7	—
E-7	Wire mesh goggles	H-3	—
E-8	Ear protectors	H-8	—

## APPENDIX A

( Clause 0.3 )

### INDIAN STANDARDS ON SAFETY EQUIPMENT FOR PROTECTION OF EYE, FACE AND EAR

- |    |                                                                                |                              |
|----|--------------------------------------------------------------------------------|------------------------------|
| 1. | Ear protectors, measurement of real-ear attenuation at threshold, method of    | IS : 6229-1971               |
| 2. | Equipment for eye and face protection during welding ( <i>first revision</i> ) | IS : 1179-1967               |
| 3. | Eye protectors, methods of test for : Part I Routine tests                     | IS : 7524<br>( Part I )-1975 |
| 4. | Filters, protective, for welding, cutting and similar operations               | IS : 5983-1971               |
| 5. | Glass, safety ( <i>second revision</i> )                                       | IS : 2553-1971               |

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# INDIAN STANDARDS

ON

## INDUSTRIAL SAFETY PERSONAL PROTECTIVE EQUIPMENT

IS :

- 583-1969 Ankle boots for general purposes (*first revision*)
- 1179-1967 Equipment for eye and face protection during welding (*first revision*)
- 1910-1961 Self-contained breathing apparatus for fire brigade use
- 1989-1973 Safety boots and shoes for mines and heavy metal industries (*second revision*)
- 2472-1969 Protective gaiters
- 2553-1977 Safety glass (*second revision*)
- 2573-1975 Leather gauntlets and mittens (*first revision*)
- 2745-1969 Firemen's helmets (*first revision*)
- 2925-1975 Industrial safety helmets (*first revision*)
- 3322-1965 PVC-coated fabrics for foul weather clothing
- 3521-1965 Linemen's leather safety belt and strap
- 3738-1975 Rubber knee boots (*first revision*)
- 3976-1975 Safety rubber-canvas boots for miners (*first revision*)
- 4128-1967 Fireman's leather boots
- 4501-1967 Aprons, rubberized, acid and alkali resistant
- 4770-1968 Rubber gloves for electrical purposes
- 5557-1969 Industrial and safety rubber knee boots
- 5852-1970 Protective steel toe caps for footwear
- 5983-1971 Protective filters for welding, cutting, and similar operations
- 6153-1971 Protective leather clothing
- 6407-1971 Rubber aprons for hospital use
- 6519-1971 Code of practice for selection, care and repair of safety footwear
- 6994 (Part I)-1973 Industrial safety gloves: Part I Leather and cotton gloves
- 7352-1974 X-ray lead-rubber protective aprons
- 7524 (Part I)-1975 Methods of test for eye protectors : Part I Routine tests
- 7612-1974 Functional requirements for flame protectors and heat resistant suits
- 7692-1975 Wooden headform for testing of helmets
- 8521 (Part I)-1977 Industrial safety faceshields : Part I With plastics visor
- 8519-1977 Guide for selection of industrial safety equipment for body protection
- 8520-1977 Guide for selection of industrial safety equipment for eye, face and ear protection



# INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

## Base Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

## Supplementary Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>
Plane angle	radian	rad
Solid angle	steradian	sr

## Derived Units

<i>Quantity</i>	<i>Unit</i>	<i>Symbol</i>	<i>Conversion</i>
Force	newton	N	1 N = 1 kg.1 m/s <sup>2</sup>
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m <sup>2</sup>
Frequency	hertz	Hz	1 Hz = 1 c/s (s <sup>-1</sup> )
Electric conductance	siemens	S	1 S = 1 A/V
Pressure, stress	pascal	Pa	1 Pa = 1 N/m <sup>2</sup>