



BUREAU OF INDIAN STANDARDS

COMPENDIUM OF STANDARDS ON PHOTOGRAPHIC EQUIPMENTS



PREPARED BY:
MECHANICAL ENGINEERING
DEPARTMENT

 www.bis.gov.in

 www.manakonline.in

TABLE OF CONTENT

Sl.No	Category	IS Identified	Pg.No
Introduction to MED 32 – Photographic Equipment			4
1.	Optical Components and Lens Standards	IS 10567: 1983 – Dimensions and designations of optical filter mounts for photographic equipment	5
		IS 15486: 2004 – Photography - Camera Lenses - Measurement of ISO Spectral Transmittance	5
		IS 9916: 1981 – Distance Scale Markings of Photographic Lenses	5
2.	Camera and Exposure Control Standards	IS 10917: 1984 – Exposure meters (photoelectric type) for general purposes	6
		IS 14622: 1998 – Photography - Electronic Flash Equipment - Automatic Control of Exposure	6
		IS/ISO 2721: 2013 – Photography — Film-based Cameras — Automatic Controls of Exposure	6
3.	Flash and Lighting Equipment Standards	IS 15047: 2002 – Photography - Electronic Flash Equipment - Connectors to Synchro-Cord	7
		IS 15049: 2002 – Photography - Handheld Cameras - Flash Connector Dimensions	7
		IS 7848: 1975 – Studio spot lights for use in motion picture studios	7
4.	Projection and Screen Performance Standards	IS 15357: Part 1: 2003 – Photography - Projection in Indoor Rooms – Part 1: Screen Illumination Test for Still Projection	8
		IS 15357: Part 2: 2003 – Photography - Projection in Indoor Rooms – Part 2: Screen Luminance Test for Still and Video Projection	8
		IS/ISO 2910: 2018 – Cinematography - Screen Luminance and Chrominance for Projection of Film Motion Pictures	8
5.	Film and Reel Dimension Standards	IS/ISO 491: 2002 – Cinematography - 35 mm Motion-Picture Film - Cutting and Perforating Dimensions	9
		IS/ISO 1793: 2005 – Cinematography - Reels for 16 mm Motion-picture Projectors (Up to and including 610m capacity:38cm size)– Dimensions	9
		IS/ISO 1039: 1995 – Cinematography - Cores for Motion-picture and Magnetic Film Rolls – Dimensions Adoption of ISO 1039:1995	9
6.	Sound Recording and Audio Standards	IS 12775: 1989 – Cinematography - Reproduction Characteristics of A-Chain Frequency Response for 35 mm Photography Sound	10
		IS 12774: 1989— Positions and Width Dimensions Recording and Producing Head Gaps and Sound Records For Three-four Or Six-track Magnetic Sound Records On	10

		35 Mm and Single-track On 17.5 Mm Motion-picture Film Containing No Picture	
		IS 13421: 1992 – Cinematography - Six-track magnetic sound records on striped release prints - locations and dimensions	10
7.	Camera Accessories and Mechanical Interfaces	IS/ISO 518: 2006 – Photography - Camera Accessory Shoes, with and without Electrical Contacts for Photoflash Lamps and Electronic Photoflash Units - Specification	11
		IS/ISO 1222: 2010 – Photography — Tripod Connections	11
		IS 11164: 1992 – Photography - Front Lens Barrels Up To 127 Mm Dimensions Important to The Connection of Auxiliaries	11
8.	Advanced Optical and Performance Testing Standards	IS/ISO 9336: Part 1: 2010 – Optics and Photonics - Optional Transfer Function - Application Part 1 Interchangeable Lenses for 35 mm Still Cameras	12
		IS/ISO 1230: 2007 – Photography - Determination of Flash Guide Numbers for Electronic Flash Equipment	12
		IS/ISO 516: 2019 – Camera Shutters — Timing — General Definition and Mechanical Shutter Measurements (First Revision)	12

Introduction to MED 32 – Photographic Equipment

The Bureau of Indian Standards (BIS) Photographic Equipment Committee (MED 32) is responsible for the formulation, development, and revision of Indian Standards related to photographic and imaging equipment used in professional, industrial, and consumer applications. Photography plays an important role in various fields such as journalism, scientific research, medical documentation, cinematography, security surveillance, advertising, and digital media production. With the rapid advancement of imaging technologies, it has become essential to establish standardized guidelines to ensure the quality, safety, and compatibility of photographic equipment.

The committee covers a wide range of photographic devices and accessories including cameras, photographic lenses, lighting equipment, filters, image recording devices, and other supporting accessories. The standards developed by this committee focus on aspects such as optical performance, exposure accuracy, mechanical strength, electrical safety, and compatibility between different photographic components. These standards also specify testing procedures and performance criteria to ensure that photographic equipment functions reliably under various operating conditions.

In addition to traditional film-based photographic systems, the committee also considers modern developments in digital imaging technologies, including digital cameras, electronic flash units, image sensors, and advanced lighting systems. The aim is to ensure accurate image reproduction, proper illumination control, and consistent photographic quality across different devices and environments.

By establishing uniform technical specifications and aligning them with internationally accepted practices, the MED 32 committee helps manufacturers produce reliable and high-quality photographic equipment. These standards also assist photographers, laboratories, and imaging professionals in achieving consistent performance, safety, and efficiency in photographic operations, thereby supporting the growth of the imaging and photographic equipment industry in India.

1. OPTICAL COMPONENTS AND LENS STANDARDS

Optical components and lens standards define the requirements for the design, manufacturing, and testing of elements such as lenses, prisms, filters, and optical coatings. These standards ensure consistency in parameters like focal length, optical clarity, surface quality, and dimensional accuracy. They also specify tolerances, material properties, and performance criteria for use in imaging, photography, and scientific instruments. Compliance with these standards helps achieve reliable performance, interchangeability, and quality assurance. Optical standards play a vital role in advancing precision applications across industries such as healthcare, defence, and cinematography.

1.1. IS 10567: 1983 – Dimensions and designations of optical filter mounts for photographic equipment

This standard specifies the size, threading, and designation of optical filter mounts used in cameras. It ensures that filters from different manufacturers can fit standard lenses without compatibility issues. The standard improves interchangeability and usability of photographic accessories. It also helps in maintaining uniformity in optical systems. Overall, it simplifies the design and use of filter-based photographic equipment.

1.2. IS 15486: 2004 – Photography - Camera Lenses - Measurement of ISO Spectral Transmittance

This standard defines methods to measure how much light passes through a camera lens at different wavelengths. It is important for evaluating lens quality and colour accuracy. The standard ensures consistency in lens performance testing. It helps manufacturers maintain high optical standards. This results in better image clarity and true colour reproduction

1.3. IS 9916: 1981 – Distance Scale Markings of Photographic Lenses

This standard specifies how distance markings should be provided on camera lenses. It ensures clarity and uniformity in focus distance indications. The markings help photographers achieve accurate focusing. The standard improves usability and reduces errors during manual focusing. It is especially useful in professional photography applications



Fig.1. Lense

2. CAMERA AND EXPOSURE CONTROL STANDARDS

Camera and exposure control standards specify the requirements for regulating light capture and image quality in photographic and imaging systems. These standards define parameters such as exposure time, aperture, ISO sensitivity, and metering methods to ensure consistent and accurate image reproduction. They also cover calibration procedures, performance evaluation, and compatibility between different camera systems and accessories. Compliance with these standards ensures uniformity, reliability, and optimal image quality across various applications. Such standards are essential in photography, cinematography, scientific imaging, and digital media industries

2.1. IS 10917: 1984 – Exposure meters (photoelectric type) for general purposes

This standard defines the performance requirements of photoelectric exposure meters. It ensures accurate measurement of light intensity for proper exposure settings. The standard covers calibration and reliability aspects. It helps photographers achieve correctly exposed images. It is widely used in both professional and general photography

2.2. IS 14622: 1998 – Photography - Electronic Flash Equipment - Automatic Control of Exposure

This standard specifies automatic exposure control in flash systems. It ensures that flash output adjusts according to subject distance and lighting conditions. The standard improves image quality by avoiding overexposure or underexposure. It enhances the efficiency of flash photography. It is essential for modern camera flash systems

2.3. IS/ISO 2721: 2013 – Photography — Film-based Cameras — Automatic Controls of Exposure

This standard defines requirements for automatic exposure mechanisms in film cameras. It ensures proper adjustment of shutter speed and aperture. The standard improves consistency in photographic results. It supports both amateur and professional photography. It also enhances ease of camera operation



Fig.2.Motion picture camera

3. FLASH AND LIGHTING EQUIPMENT STANDARDS

Flash and lighting equipment standards define the requirements for the design, performance, and safety of photographic and cinematographic lighting systems. These standards specify parameters such as light intensity, colour temperature, beam angle, and synchronization with camera systems. They also include guidelines for electrical safety, durability, and thermal management of lighting equipment. Compliance ensures consistent illumination, accurate colour reproduction, and reliable operation across different environments. Such standards are essential for professional photography, film production, broadcasting, and studio lighting applications

3.1. IS 15047: 2002 – Photography - Electronic Flash Equipment - Connectors to Synchro-Cord

This standard specifies connector dimensions for linking flash units with cameras. It ensures proper synchronization between shutter operation and flash firing. The standard improves compatibility between devices. It helps in achieving accurate exposure timing. It is important for both studio and field photography

3.2. IS 15049: 2002 – Photography - Handheld Cameras - Flash Connector Dimensions

This standard defines the dimensions of flash connectors in handheld cameras. It ensures that external flash units can be easily connected. The standard supports uniformity across camera designs. It improves usability and flexibility in photography. It also reduces equipment compatibility issues

3.3. IS 7848: 1975 – Studio spot lights for use in motion picture studios

This standard covers requirements for studio spotlights used in filmmaking. It ensures proper illumination, safety, and performance. The standard supports consistent lighting conditions during shooting. It improves visual quality in motion picture production. It is essential for professional studio setups



Fig.3. Flash Equipment

4. PROJECTION AND SCREEN PERFORMANCE STANDARDS

Projection and screen performance standards define the requirements for image display quality in projection systems and viewing screens used in cinemas, presentations, and visual media. These standards specify parameters such as brightness, contrast ratio, resolution, colour accuracy, and uniformity of illumination. They also cover screen characteristics like reflectance, gain, viewing angle, and surface quality to ensure optimal image clarity. Compliance ensures consistent and high-quality visual performance across different projection environments. Such standards are essential for achieving accurate image reproduction in film, digital projection, and large-scale display systems

4.1. IS 15357: Part 1: 2003 – Photography - Projection in Indoor Rooms - Screen Illumination Test for Still Projection

This standard specifies methods to measure screen illumination for still image projection. It ensures uniform brightness across the projection screen. The standard improves viewing quality. It helps in evaluating projector performance. It is important for indoor presentation systems

4.2. IS 15357: Part 2: 2003 – Photography - Projection in Indoor Rooms - Screen Luminance Test for Still and Video Projection

This standard defines luminance testing for both still and video projections. It ensures proper brightness and contrast levels. The standard improves audience viewing experience. It helps maintain projection quality standards. It is widely used in theatres and presentation halls

4.3. IS/ISO 2910: 2018 – Cinematography - Screen Luminance and Chrominance for Projection of Film Motion Pictures

This standard specifies brightness and colour requirements for cinema screens. It ensures accurate colour reproduction and uniform illumination. The standard enhances visual quality in theatres. It helps maintain consistency across projection systems. It is critical for film exhibition standards



Fig.4. Projector

5. FILM AND REEL DIMENSION STANDARDS

Film and reel dimension standards define the specifications for the physical dimensions and tolerances of photographic and cinematographic films and their reels. These standards cover parameters such as film width, thickness, perforation size and spacing, reel diameter, and core dimensions. They ensure compatibility between cameras, projectors, and processing equipment across different manufacturers. Compliance with these standards enables smooth handling, proper alignment, and reliable transport of film during shooting and projection. Such standards are essential for maintaining consistency, interchangeability, and performance in film-based imaging systems

5.1. IS/ISO 491: 2002 – Cinematography - 35 mm Motion-Picture Film - Cutting and Perforating Dimensions

This standard defines cutting and perforation dimensions for 35 mm films. It ensures compatibility with cameras and projectors. The standard maintains uniform film handling. It reduces mechanical issues during operation. It is essential for film production and projection

5.2. IS/ISO 1793: 2005 – Cinematography - Reels for 16 mm Motion-picture Projectors (Up to and including 610m capacity:38cm size)– Dimensions

This standard specifies the dimensions of reels used in 16 mm projectors. It ensures proper film winding and smooth movement. The standard supports reliable projection systems. It improves operational efficiency. It is widely used in film projection equipment

5.3. IS/ISO 1039: 1995 – Cinematography - Cores for Motion-picture and Magnetic Film Rolls – Dimensions Adoption of ISO 1039:1995

This standard defines the dimensions of cores used for film rolls. It ensures proper storage and handling of films. The standard supports compatibility with reels and projectors. It reduces damage to film material. It is important for film preservation



Fig.5. Photographic Film

6. SOUND RECORDING AND AUDIO STANDARDS

Sound recording and audio standards define the requirements for capturing, processing, and reproducing sound with clarity and accuracy. These standards specify parameters such as

sampling rate, bit depth, frequency response, and signal-to-noise ratio to ensure high-quality audio performance. They also cover equipment calibration, recording formats, and compatibility across different audio systems. Compliance ensures consistent sound quality, minimal distortion, and reliable playback in various applications. Such standards are essential in film production, broadcasting, music recording, and multimedia industries.

6.1. IS 12775: 1989 – Cinematography - Reproduction Characteristics of A-Chain Frequency Response for 35 mm Photography Sound

This standard specifies frequency response for sound reproduction in 35 mm films. It ensures accurate audio playback. The standard improves sound clarity and consistency. It supports cinema sound system design. It is essential for high-quality film audio.

6.2. IS 12774: 1989 – Positions and Width Dimensions Recording and Producing Head Gaps and Sound Records for Three-four Or Six-track Magnetic Sound Records On 35 mm and Single-track On 17.5 Mm Motion-picture Film Containing No Picture

This standard defines positions and dimensions for magnetic sound recording heads. It ensures proper alignment and recording accuracy. The standard improves sound quality. It supports compatibility in audio systems. It is critical for film sound recording.

6.3. IS 13421: 1992 – Cinematography - Six-track magnetic sound records on striped release prints - locations and dimensions

This standard specifies layout and dimensions for six-track sound systems. It ensures proper channel separation. The standard enhances multi-channel audio quality. It supports advanced cinema sound formats. It is used in high-end film production



Fig.6. Speakers

7. CAMERA ACCESSORIES AND MECHANICAL INTERFACES

Camera accessories and mechanical interface standards define the specifications for the physical connection and compatibility between cameras and their supporting equipment. These

ensures that optical devices meet required performance levels and function reliably in their intended applications. Such standards are essential for high-precision fields including scientific instrumentation, medical imaging, defence systems, and advanced photography

8.1. IS/ISO 9336: Part 1: 2010 – Optics and Photonics - Optional Transfer Function - Application Part 1 Interchangeable Lenses for 35 mm Still Cameras

This standard defines methods to evaluate lens performance using OTF. It measures sharpness and image quality. The standard helps in comparing lenses. It ensures high optical performance. It is important in lens design and testing.

8.2. IS/ISO 1230: 2007 – Photography - Determination of Flash Guide Numbers for Electronic Flash Equipment

This standard specifies how to calculate flash guide numbers. It helps determine flash power and coverage. The standard improves exposure accuracy. It supports proper flash usage. It is widely used in photography.

8.3. IS/ISO 516: 2019 – Camera Shutters —Timing — General Definition and Mechanical Shutter Measurements (First Revision)

This standard defines shutter timing and measurement methods. It ensures accurate exposure duration. The standard improves camera performance. It supports testing and calibration. It is essential for reliable photography



Fig.8. Light meter