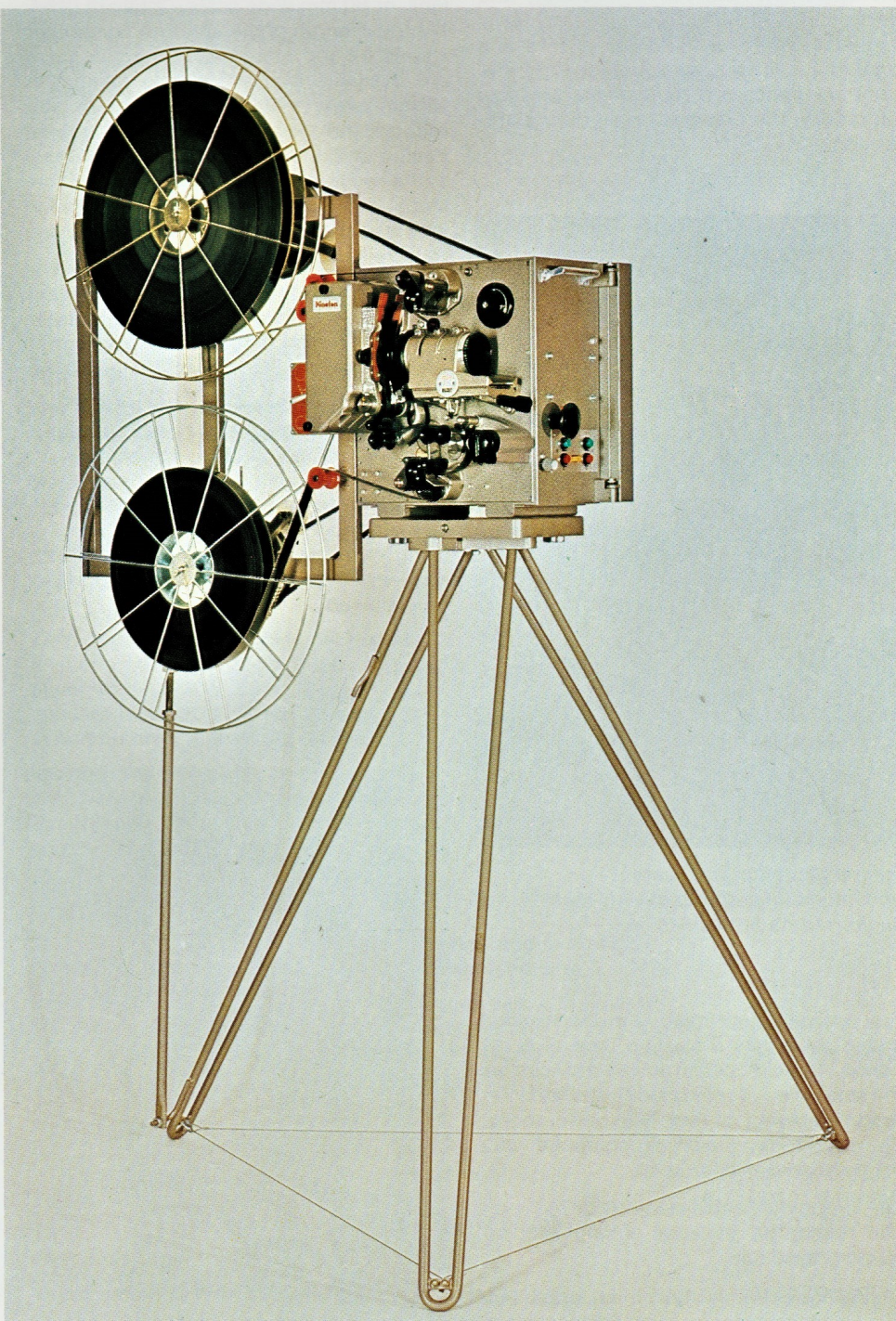




### Projector FP 23

The FP 23 projector, a portable 35 mm cinema equipment, is designed to meet the most demanding performance and quality specifications. It is equally suitable for use as a permanent installation in many applications, such as in studios, shipboard cinemas, small theatres and other installations. The FP 23 projector, developed from the fully proven stationary Kinoton projectors, has all the outstanding characteristics of that mechanism which has given long and reliable operation in thousands of cinemas throughout the world.



- Excellent picture and sound quality
- High reliability
- Excellent light-intensity
- Ease of installation and operation
- Minimal maintenance
- Compact design
- Small dimension and low weight
- Fully tropicalised

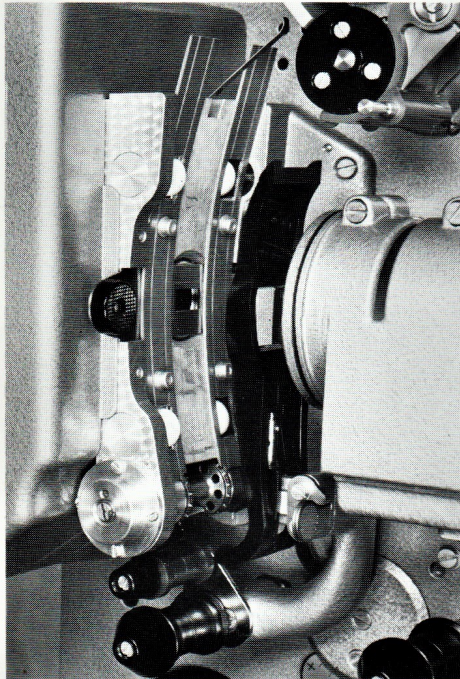


## Projector Mechanism

The complete projector mechanism, including film mechanism, optical sound device, exciter lamp power supply, gear unit, drive motor, transformer and electrical unit is installed in a sheet metal housing 39 cm wide, 43 cm high and 38 cm deep. The rear section forms a door for access to the mechanism.

The intermittent movement runs in an oil bath. All shafts have maintenance-free sealed ball bearings. The feed and hold-back sprockets are driven by chains on wheels ensuring silent operation. The disc-shaped single-blade 2880 r.p.m. shutter has an efficiency of 54%. The very light-weight intermittent sprocket is supported on both sides for extra stability.

The film gate is curved and ensures perfect picture steadiness, both horizontally and vertically. The film runs between easily replaced Delrin or Novotex runners and centrally adjusted pressure skates. The aperture plates are removeable and can be readily interchanged, even during projection.



*curved film gate with skate and intermittent sprocket with shaft supported on both sides*

The optical sound head with the rotating sound drum has a starting time of 3 seconds. Special construction absorbs all the small shocks generated by the sprocket teeth engaging in the film perforations. The standard version is equipped with solar cell and exciter lamp.

The lensholder (with a diameter of 70.6 mm) can readily be replaced without any focussing problems.

Holder for extremely short focal length lenses, used for instance in rear projection or for fairs and exhibitions upon request.

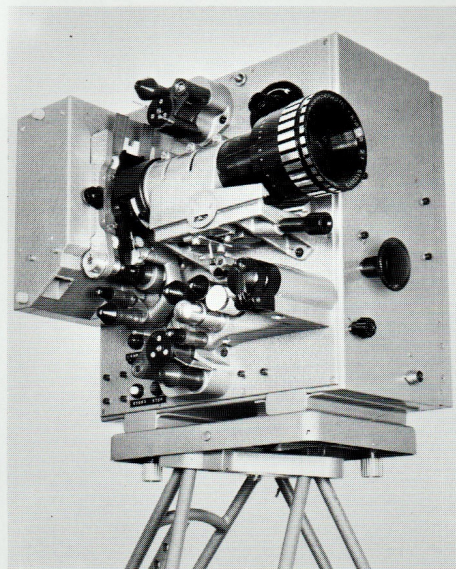
## Light Source

The FP 23 Projector is equipped with 36V 400 Watt halogen lamps. This lamp was chosen because of its pure white colour (colour temperature) and its extremely high light-intensity due to the size of the helix. Two halogen lamps are fitted in a lamp turret. Should one lamp fail, an electronic control operates the turret and the second lamp replaces the faulty one. The lamp voltage is provided by a built-in universal transformer.

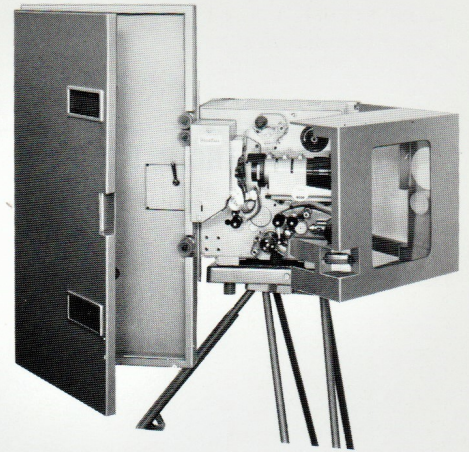
The optical system consists of a Dichroic mirror, an aspherical condenser and an aperture condenser. The aperture condenser corresponds to the focal length of the lens to be used, or, if different aspect ratios are to be used, the mean or average of all focal lengths should be calculated. If for instance a 120 mm Cinemascope lens, or 80 mm wide screen lens are used, the focal length of the aperture condenser should be 100 mm. Aperture condensers are available from 40 mm to 80 mm in 10 mm steps and 100 and 120 mm. We recommend Cinelux-Ultra Lenses with an  $f$  value of 2, a barrel diameter of 70.6 mm and a range of 45 mm to 150 mm in 5 mm steps. For Cinemascope, an anamorphic lens is available to which these Lenses can be screwed.

The complete optical system is so compact that it can be installed in the shutter housing. Cooling is effected by the shutter acting as a fan.

The light brightness in front of the lens, measured with the shutter rotating, amounts to 1600 lumen. When using a mattwhite screen, a picture size of 10 square metres can be obtained with a light-intensity approximating 10 ft lamberts, or using a screen with a reflection factor of 2, a cinemascope picture of 2.85 x 6.7 m can be achieved.



*projector head FP 23 with halogen lamp without door*



*Projector FP 23 with door and spool boxes opened*

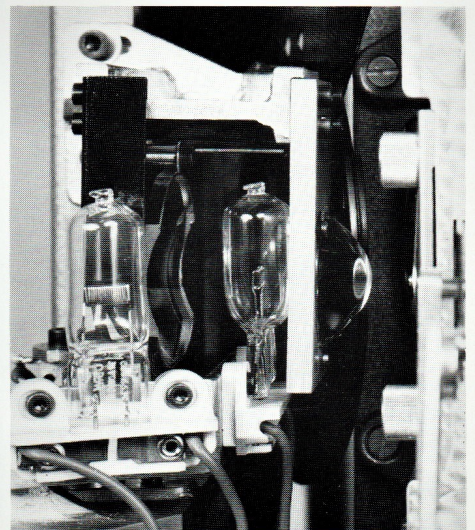
## Electrical Equipment

A long mains cable is supplied with the equipment and fitted with a plug to match the socket in the projector. If two projectors are being used with a change-over device, a 6-core cable is also required for insertion into the 6-pole socket of both projectors. A 3-pole socket is used to connect the solar cell to the amplifier.

The projector is push-button controlled. Linking of the motor relay, lamp relay and spare lamp switching relay ensures automatic safety switching in connection with the magnetic film-rupture device.

## Spool Shafts and Spool Boxes

The FP 23 projector can be supplied with spool shafts for 600 m and 1800 m spools. The shafts are fixed with two knurled screws at the rear of the projector. Flat belts provide the take-up friction drive.



*turret for halogen lamps*



- Spool boxes can be supplied for 600 m or 1800 m spools, they can be readily screwed on to the spool shafts.

### Rewind Equipment

The FP 23 projector may be supplied with built-in rewind equipment, avoiding the need for a separate rewinder. The rewind equipment uses the projector motor which is declutched from the projector mechanism during rewinding and also drives the shaft of the upper spool. Thus the film can be rewound from the lower to the upper spool. The transfer from forward to reverse running modes is actuated at the spool shaft.

### Installation

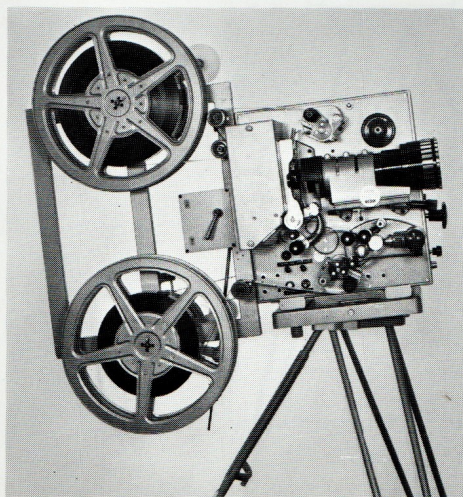
The FP 23 projector mechanism can be mounted positively on a tripod by means of two knurled screws without the use of any tools. For a fixed installation, the mechanism can be mounted on a column.

### Amplifier

Where there are no existing cinema amplifiers, the use of amplifiers of the SQ 4 programme is recommended for either portable or fixed operation, for instance the mixing amplifiers LBB 1142 or LBB 1143. Fully transistorized with 50 or 100 Watt output, the amplifiers are equipped with a volume control and a separate control for low and high frequency. A tape recorder, cassette recorder, record player or microphone can be connected. A monitor loudspeaker can also be connected via the intercom output. In case of fixed operation, the amplifier can be built in the column, or a K 5 amplifying equipment in a separate housing can be delivered. If two-channel installations are required, the use of K 6 amplifier station with 2 mixing amplifiers is recommended.

### Loudspeakers

For use where no loudspeakers are installed or available, a wide range of 25 Watt loudspeakers can be supplied. These are built into a carrying case with 25 metres of cable. The carrying case is also sufficiently large to house the amplifier.



projector head FP 23 with spool shafts 600 m

### Carrying Cases

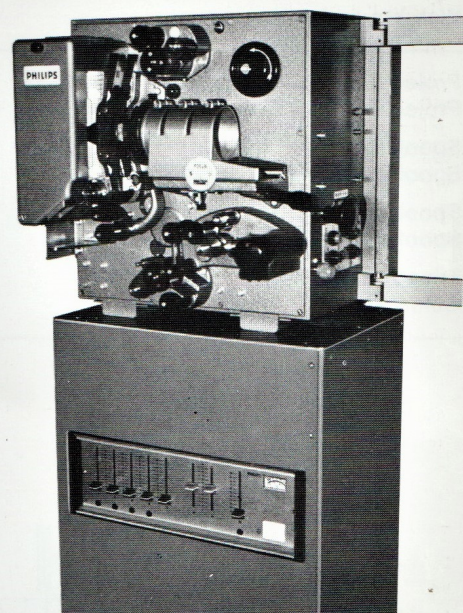
Carrying cases are available for the projector and 600 m or 1800 m spools and spool boxes. A separate cover is supplied for the tripod.

### Programme Case

When the projector is used as portable equipment, the purchase of a programme case with the following facilities is recommended: -

- 1 split film spool 600 m
- 6 film spools 600 m or 3 film spools 1800 m
- 1 cine film tape splicer with tape
- 2 halogen lamps (36 V 400 Watt)
- 2 exciter lamps (6.5 V 1.48 amps)
- 1 set of lubricants
- 1 set of tools
- 1 set of spares
- 1 set of spares fuses

Lenses and screens, as well as any other booth accessories, can also be supplied if required.



FP 23 mounted on column with amplifier 50 W

### Type - Numbers

**Projector FP 23** with optical sound device lens holder 70.6 mm  $\varnothing$ , 1 set of aperture plates, case, lamp turret with 2 halogen lamps 36 V 400 W, with built-in electrical unit built-in transformer, built-in exciter lamp power supply

0010 238 . . . . 1

**Projector FP 23** as above but with front door built-in rewinder

0010 239 . . . . 1

with motor

0010 23. 1 . . . 1

asynchronous 220 V, 50 Hz, 24 p/s

0010 23. . 1 . . 1

asynchronous 110/220 V, 60 Hz, 24 p/s

0010 23. . 2 . . 1

synchronous 220 V, 50 Hz, 24 p/s

0010 23. . 3 . . 1

synchronous 220 V, 50 Hz, 25 p/s

0010 23. . 4 . . 1

synchronous 110 V, 60 Hz, 24 p/s

0010 23. . 5 . . 1

spool shafts 600 m (2000 ft)

0010 23. . . 1. 1

spool shafts 600 m with spool boxes

0010 23. . . 2. 1

spool shafts 1800 m (6000 ft)

0010 23. . . 3. 1

spool shafts 1800 m with spool boxes

0010 23. . . 4. 1

tripod

0010 23. . . . 11

column

0010 23. . . . 21

All Type numbers are in each case combined into a 12-digit number. Digits that are not required are replaced with 0.

Example: Projector FP 23 without front door, but with built-in rewinder, asynchronous motor 220 V, 50 Hz, 24 p/s with spool shafts 1800 m, with tripod has the type number:

0010 238 11311

Accessories are ordered by separate type numbers:

carrying case projector

0010 230 00010

carrying case spool shafts 600 m

0010 230 00020

carrying case spool shafts 600 m with spool boxes

0010 230 00021

carrying case spool shafts 1800 m

0010 230 00030

carrying case spool shafts 1800 m with spool boxes

0010 230 00031

cover for tripod

0010 230 00040

loudspeaker 25 W in carrying case with amplifier 50 W

0010 230 00086

amplifier 50 W

0010 230 00080



## Weights and measures

Projector FP 23 without front door	48 kg
Projector FP 23 with front door	52 kg
Spool shafts 600 m	15 kg
Spool shafts 600 m with spool boxes	25 kg
Spool shafts 1800 m	18 kg
Spool shafts 1800 m with spool boxes	44 kg
Tripod	11 kg
Column	42 kg

