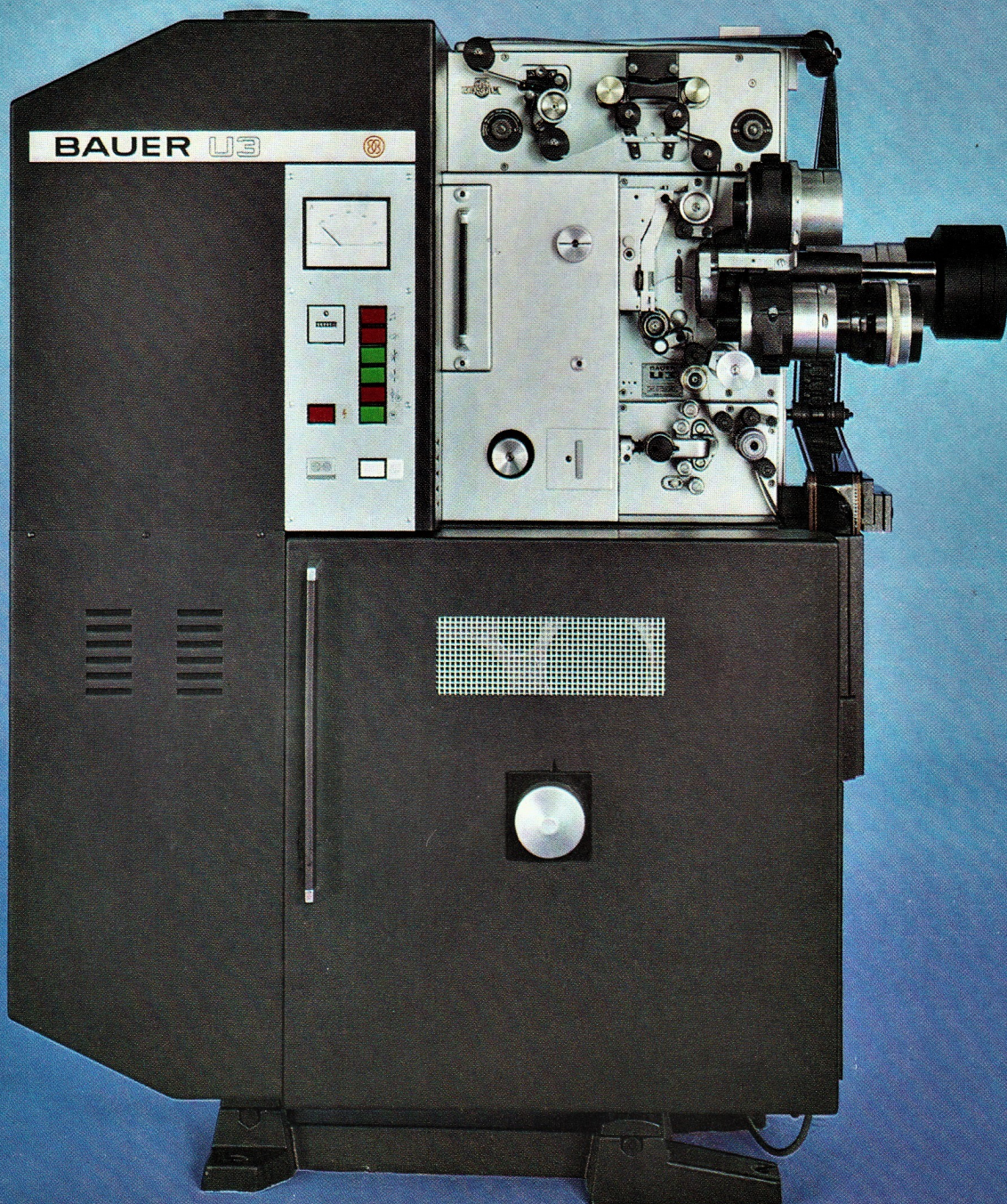


The Bauer U3, The Modern Universal Projector for 35 mm and 70 mm Cine Film



The Bauer U 3

The Universal Projector for Cinemas of Any Size

The Bauer U 3 Projector

is a unit of modern design for replay of 35 mm and 70 mm film. Take-up and feed spools are incorporated in the projector pedestal.

Projector mechanism, optical and magnetic sound units and xenon lamp form an enclosed, clearly, laid out whole. This facilitates adjustment, handling and maintenance. Large spool capacity, xenon lamp and lens turret make the projector suitable for fully-automatic operation.

The lamphouse can be equipped optionally to accommodate the conventional 900, 1600 and 2500 Watt Xenon lamps, and the special version will take 4000 or 6500 lamps. Thus, the U 3 projector is suitable for use in small or medium-sized cinemas as well as in the drive-in cinema.

In Standard Form

the U 3 projector is equipped for replay of 35 mm optical sound film. It is possible to change over as required to standard, wide screen or CinemaScope format by shifting a sliding mask incorporating three film gates.

The Lens Turret

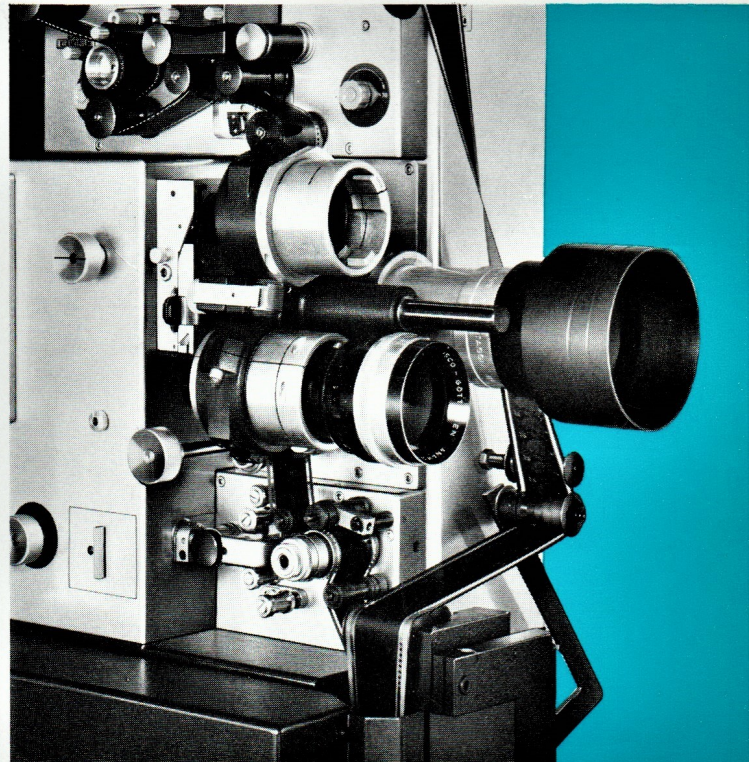
permits equally rapid lens change to suit the 3 formats. Refocusing is not necessary.

The lens holder accommodates all conventional lenses with focal lengths of 45 mm and over and lens mount diameters of 62.5 mm, 70.6 mm or 101.6 mm.

For replay of 35 mm magnetic sound film there is a Klangfilm magnetic sound unit with 4-channel sound head.

Conversion for 70 mm Film Replay

is possible in a matter of minutes. Thus, with only



two projectors it is possible to replay all four conventional picture formats in one performance.

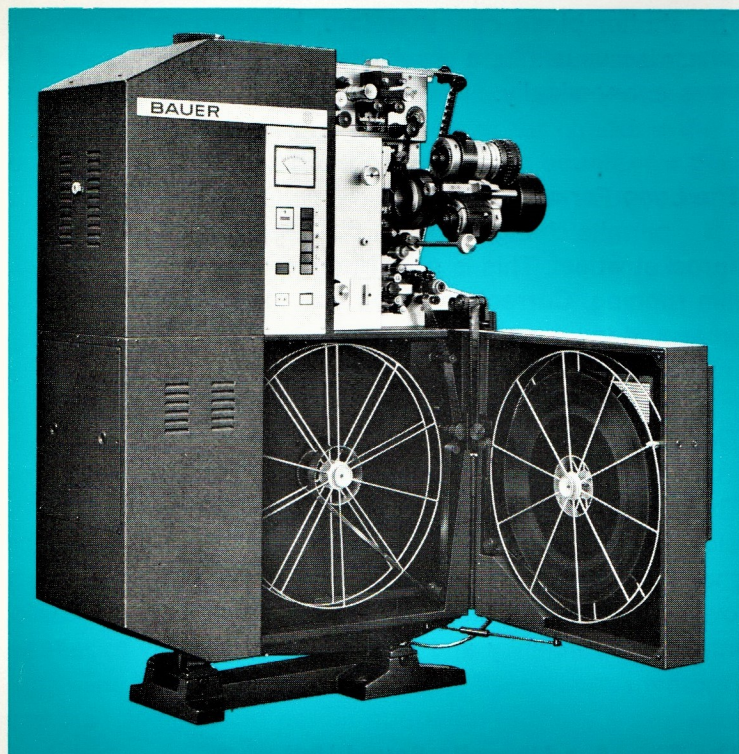
Conversion is confined to changing the following projector components:

- the film gate assembly,
- the sprockets,
- the lay-on roller on the sprocket wheel,
- the spool shafts,
- the lens, and
- the field lens.

On the magnetic sound unit it is only necessary to change:

- the magnetic head,
- the sprocket and
- the appropriate lay-on roller.

Capacity: 2000 m of Film— A Complete Evening's Programme on Two Bauer U 3 Projectors.

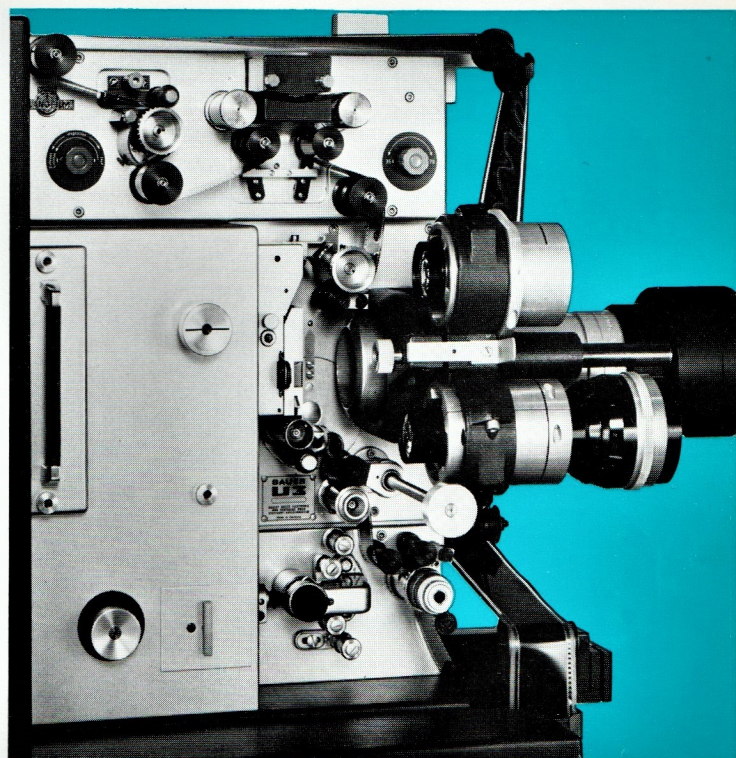


The Spool Magazines for 2000 m (7000 ft) of Film

are an important special feature of the Bauer U 3 projector. It is thus possible to accommodate a full evening's programme in two machines, with only one projector change. The magazine for the take-up spool also forms a firm base for projector mechanism. The feed spool is level with the take-up spool. The feed spool magazine is hinged outwards like a door for film loading. Thus, even full film spools are easily placed on the spindles.

For Optimum Film Handling

the projector is equipped with controlled feed. A special motor in the feed spool magazine maintains a constant film tension of 350–450 g in combination with a scanner unit. This control functions during feed from the bobby as well as from spools up to 2000 m capacity.



The Projector Mechanism

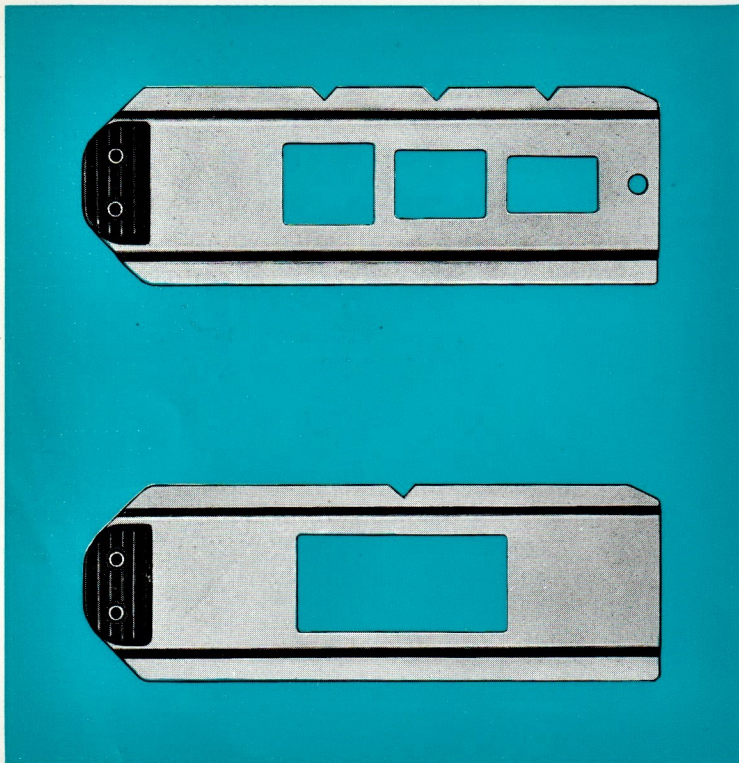
forms a single unit with the optical sound system. The magnetic sound drive mechanism is an integral part of the projector mechanism.

Simple construction and extreme robustness characterize the drive unit. It permits central frame adjustment without shifting the optical axis. Gear belts of proven design transmit the power to feed and take-up sprockets and to the Maltese cross intermittent. They guarantee smooth, vibration-free projector running.

The flywheel mass of the Maltese cross intermittent immersing in the oil bath flings the oil up inside the transmission case and provides generous lubrication of all necessary points in the drive unit. Apart from regular oil changing practically no maintenance is necessary.

The operating side of the projector mechanism permits easy access and simple changing of the different components necessary for 35 and 70 mm film.

Outstanding Picture Quality and Sound Reproduction



Film Guidance

in the projector is designed to meet the exacting requirements of 70 mm film. Curvature of the film is prevented by bowing the film slightly before it reaches the film gate. This is also beneficial for 35 mm. The film is pressed against the curved runner plate by flexible plastic strips. The high sliding property of the strips prevents deposition of the film emulsion.

A sliding mask for all three standard film formats facilitates changeover from one format to the other.

Runner plate and counter plate can be removed and changed quickly with a minimum of manipulation for conversion from 35 to 70 mm film — or vice versa.

The Rotary Shutter,

a single-blade disc shutter masks the film gate twice per frame advance. The speed of rotation which is twice that of the conventional twin-blade shutter requires only half as much time from entry of the shutter blade in the image field to complete cut-off and from exit from the image field to exposure of the complete frame area.

The shutter blade can, therefore, be narrower than is otherwise usual. As a result, the light available is used more economically.

The Loop Former

permits changing of the film loop size behind the sprocket wheel. This is possible after loading and during film running. Correct film loop size means reduced film wear and low running noise.

The Optical Sound Unit

forms an integral part of the projector construction. The exciter lamp is easily accessible from the operating side of the projector. A modern photovoltaic cell has taken the place of the conventional photocell. Its advantages over the photocell are: practically unlimited service life, increased efficiency and reduced susceptibility to failure.

The Klangfilm Magnetic Sound Unit

can be used for both 35 mm and 70 mm format magnetic sound film. It can be fitted with two types of magnetic heads: a 4-channel magnetic head for replay of 35 mm magnetic sound film or a 6-channel magnetic head for replay of 70 mm sound film. The heads are easily interchangeable. The only other components that need changing are the sprocket and the appropriate lay-on roller.

Simplicity of Operation, Maximum Reliability, Minimum Maintenance.

The Electrical Controls

for projector, lamp and sound equipment are clearly laid out on the control panel. The pushbutton switches are marked with symbols. An ammeter for checking the operating current and an operating hours counter for the burning life of the Xenon lamp complete the equipment.

Drive

is by means of an asynchronous motor running on 220 V single-phase AC 50 Hz. The speed of this type motor is independent of both voltage fluctuations in the power supply and the operating temperature of the projector. A flexible gear belt ensures non-slip, low noise projector drive.

The drive motor pinion can be changed for connection to a 60 Hz power supply. For supply voltages other than 220 V the addition of a mains transformer is necessary.

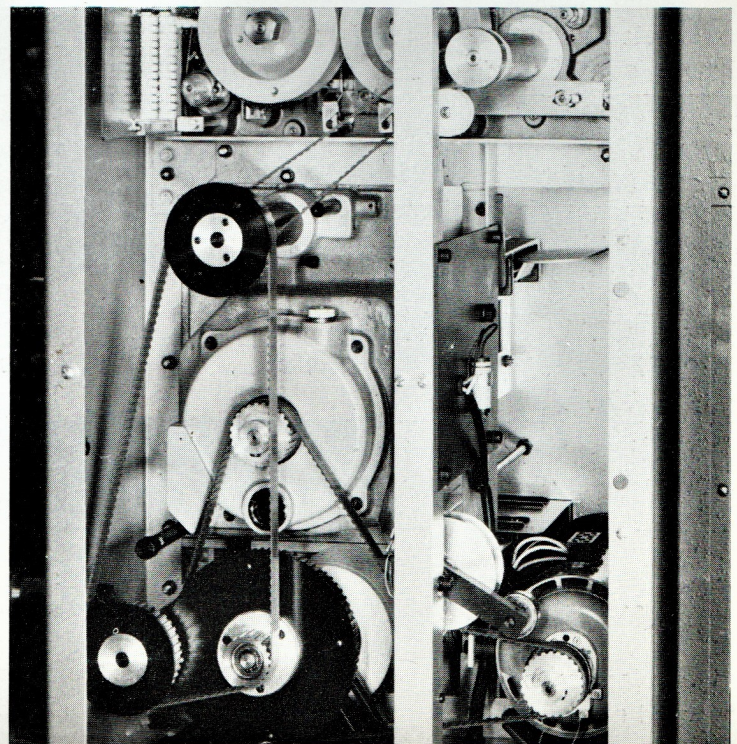
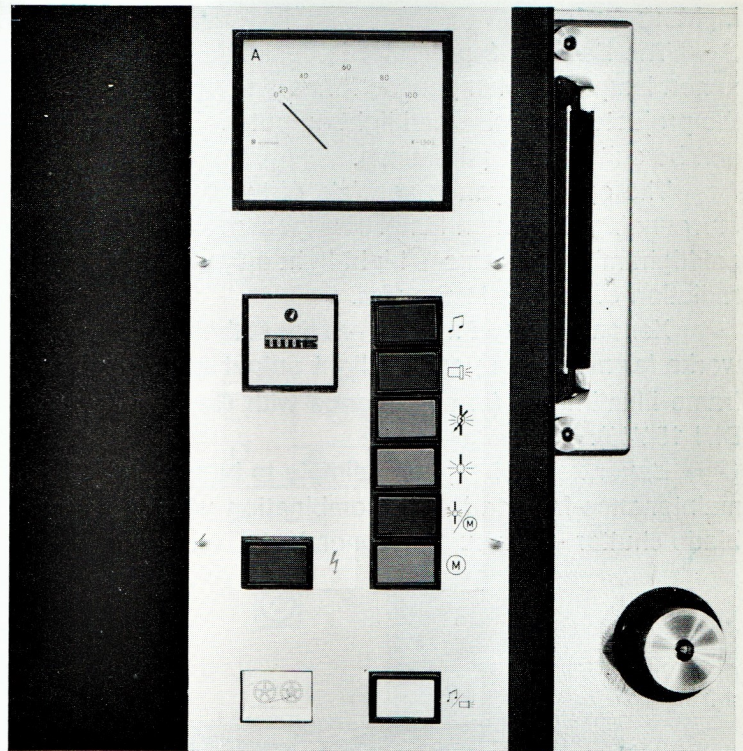
The projection speed is 24 fps. Synchronous motors are also available to permit operation of the U 3 projector at either 25 fps or 24 fps.

The Film Tear and Split Protection Switch

automatically switches the projector off irrespective of whether the film tears or splits horizontally or vertically.

As Accessory

a conversion kit is available for power film rewind in the projector.



Optimum Light Output

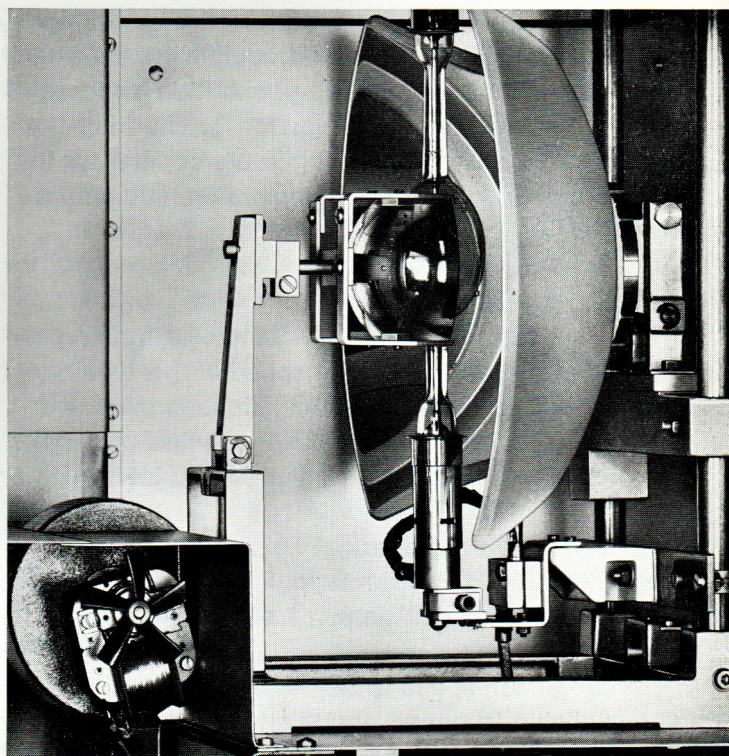
Lighting System

The Bauer U 3 projector is designed for use with xenon lamps. The lamphouse forms an enclosed unit with the projector. The size and light output of the lamp fitted can be suited to requirements.

The optical system consists of two concave mirrors surrounding the xenon lamp. The main mirror, a dichroic coldlight mirror, produces high light output with minimum radiation of heat onto the film.

Xenon lamp and mirrors are set at the manufacturer's works for maximum possible light output and optimum frame illumination (in accordance with German Standard DIN 15 749).

Bauer xenon lamps are simple to handle, maintenance-free and – in combination with the single blade shutter – unusually economical.



The following screen image widths are attainable:

Xenon lamps Rated output Range of adjustment*	Average Burning Life Hours*	Frame Formats	On white screen Reflection 0.8°	On beaded screen Reflection 1.5°
900 W	2000	Standard film	6 m	8 m
30-53 A		CinemaScope film	8 m	10.5 m
1600 W		70 mm film	—	—
1600 W	2000	Standard film	9.5 m	13 m
45-75 A		CinemaScope film	13 m	17 m
2500 W		70 mm film	13 m	17 m
2500 W	1500	Standard film	12 m	16 m
60-95 A		CinemaScope film	16 m	21 m
4000 W		70 mm film	15 m	21 m
4000 W	1000	Standard film	13 m	18 m
60-145 A		CinemaScope film	18 m	25 m
6500 W		70 mm film	16 m	22 m
6500 W	400	Standard film	14 m	20 m
80-175 A		CinemaScope film	22 m	30 m
		70 mm film	20 m	29 m

* Manufacturer's data

° Rated output values:

Standard film with 100 mm f/1.6 lens

CinemaScope with 100 mm f/1.6 lens + anamorphic attachment 2 x

70 mm film with 100 mm f/1.2 lens

Optimum Film Handling Assured by Efficient Cooling

For Cooling

of the motor and the film locating components at the film gate, the projector has two fans. The cooling air for the film guide is past to the film gate area by means of cooling baffles. This ensures optimum film handling even with high xenon lamp light output.

A fan built into the lamphouse cools the auxiliary mirror.

An extractor duct must be connected to the air vent in the lamphouse top to conduct away the hot air in the lamphouse. Extraction efficiency can be improved by incorporating a fan in the extractor duct.

The Bauer Dichroic Coldlight Mirror

The dichroic coldlight mirror fitted as standard in all Bauer xenon lamphouses is an effective component to reduce heat radiation from the light source. It possesses the property of separating light and heat and only reflects the visible light necessary for projection towards the film. The major part of the radiant heat is allowed to pass out at the rear and is conducted away through the lamphouse air vent.

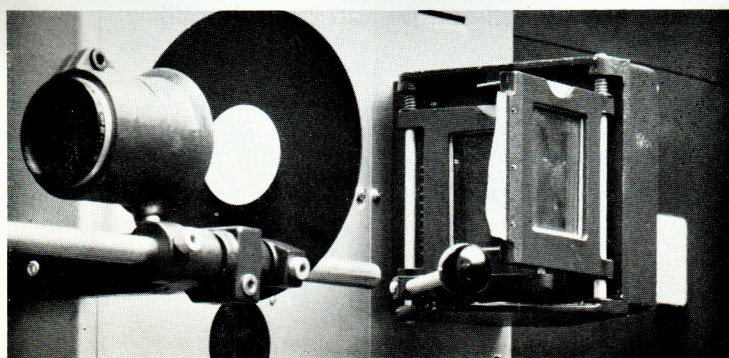
This not only completely eliminates the risk of film warp but also increases the efficiency of the projection system because the dichroic coldlight mirror reflects approximately 15 % more light than a standard movie projector mirror and possesses considerably longer service life as a result of its reduced wear.

The Bauer Dialux IV Slide Attachment

is attached to the U 3 projector for projection of advertising slides. By virtue of its special design the whole luminous flux of the projection source is utilized for slide projection.

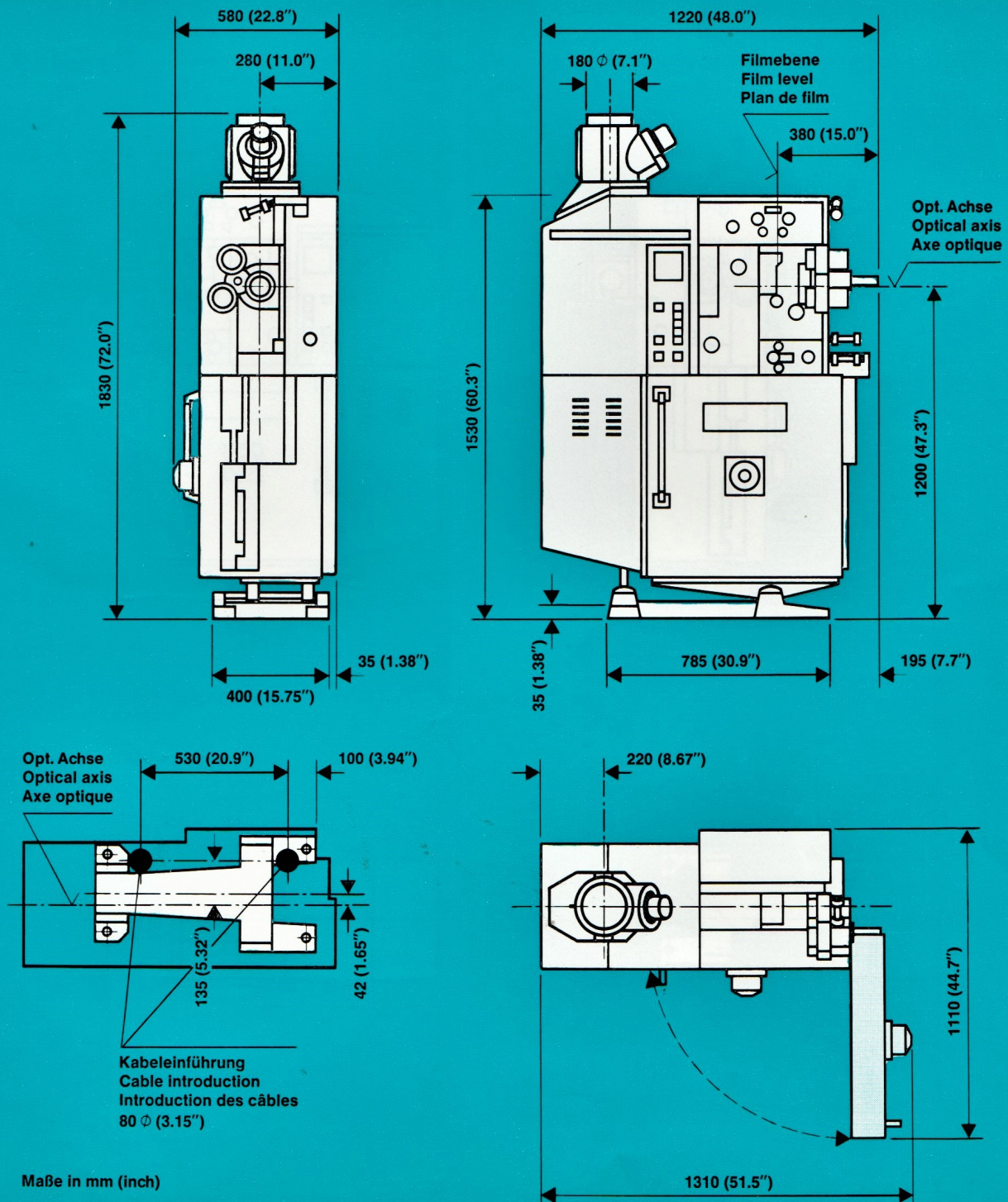
The Bauer Dialux IV is fitted with a swivel flap to permit continuous slide projection. The swivel-mounted lens holder accepts 62.5 mm diameter lenses. Slide frames are available for glass-mounted slides of the following sizes: 8.5 x 8.5 cm / 8.5 x 10 cm / 7 x 7 cm. A further swivel-mounted lens holder can be attached for wide screen projection.

Under certain circumstances it is also possible to project 5 x 5 cm 35 mm slides. An additional fan is necessary for this purpose. The maximum luminous flux in this case should not exceed 200 lm.



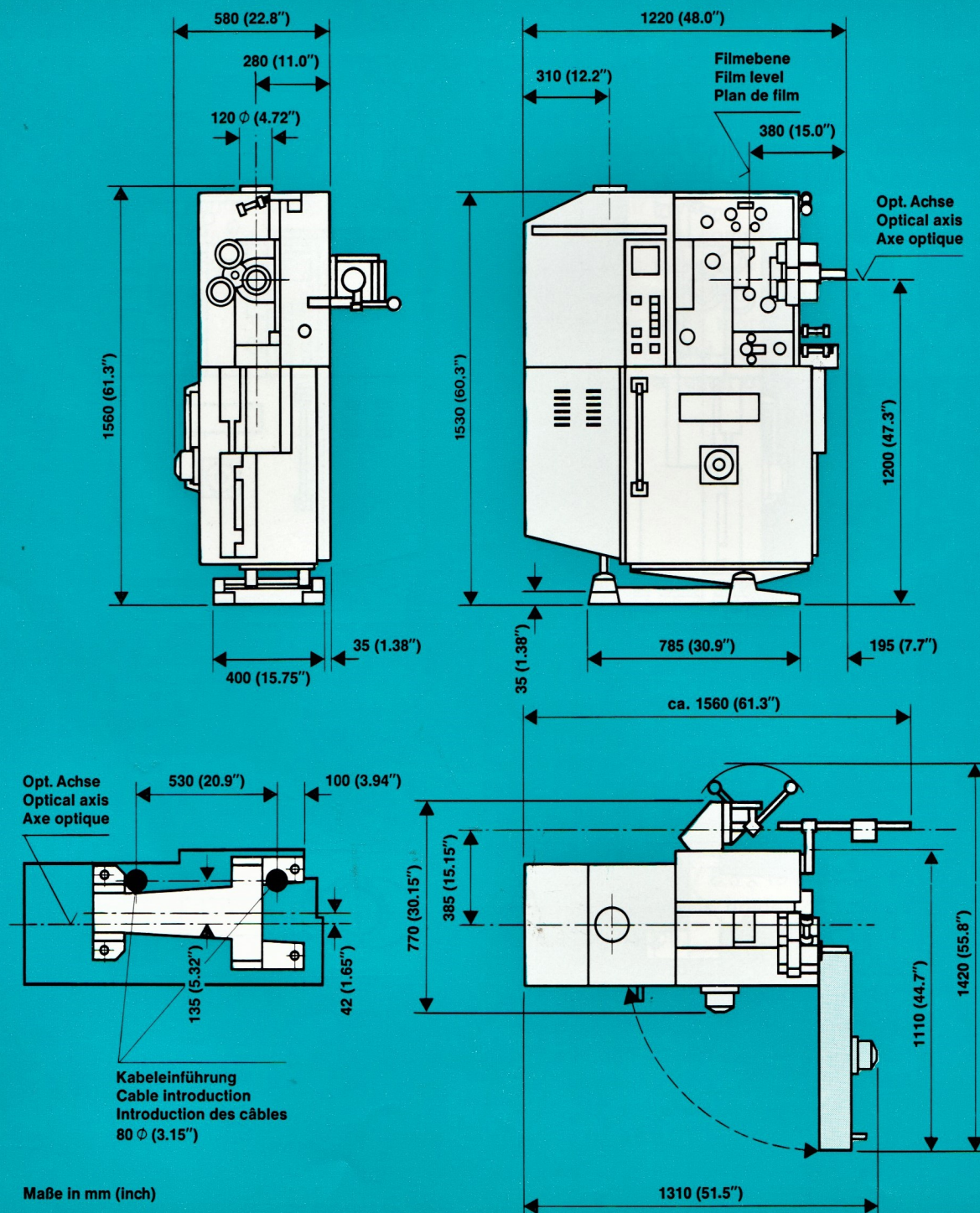
Dimensioned Drawing 1

Bauer U 3 Universal Projector with 4.0 - 6.5 kW Xenon Lamphouse



Dimensioned Drawing 2

**Bauer U 3 Universal Projector with 0.9 - 2.5 kW Xenon Lamphouse
and Bauer Dialux IV Slide Attachment**



Specification

Weight:

0.9–2.5 KW	=	280 kg nett
4 –6.5 KW	=	310 kg nett
Magnetic sound unit	=	13 kg nett
70 mm Conversion kit	=	18 kg nett
Slide attachment	=	8 kg nett

Dimensions:

See pages 8 and 9

Drive Motor and Supply Voltage:

Single-phase AC asynchronous motor
220 V/50 or 60 Hz
117 V/60 Hz

Control Voltage:

24 Volt DC from built-in power supply unit

Intermittent System:

4-bar Maltese cross in oil bath with 16-tooth sprocket

Picture Format:

Standard	1 : 1.37	Wide screen	1 : 1.66
CinemaScope	1 : 2.35	Todd-AO	1 : 2.20

Picture Steadiness:

Vertical	± 0.08 %	Horizontal	± 0.15 %
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Runner Plate Pressure Strips:

Plastic tension strips for normal copies,
metal tension strips with velvet for new BW copies

Film Tension:

350–450 g (adjustable)

Rotary Shutter:

Single-blade shutter 2880 rpm for 35/70 mm film,
special design for drive-in cinemas

Projection Lenses:

101.6 mm ϕ : Lens turret mounts
70.6 mm ϕ : with lens adaptor 101.6/70.6 mm
62.5 mm ϕ : with lens adaptor 101.6/70.6 mm
and adaptor tube 70.6/62.5 mm

Film Feed:

By means of single-phase asynchronous motor 220 V,
50–60 Hz (automatically controlled)

Film Take-up:

Load-dependent friction for all film spools up to 2000 m

Film Rewind (Special Accessory):

Adjustable for 600 m or 2000 m film spools,
with end cutout. Driven by single-phase asynchronous
motor 220 V, 50–60 Hz

Spool Spindles:

35 mm film 9 mm ϕ
70 mm film 12.5 ϕ or 8 mm ϕ on request

Projector Tilt:

Upward: 6° Downward: 15°

Maximum Xenon Lamp Inclination:

900–2500 W	± 30°
4000 W	± 15°
6500 W	± 10°

Optical Sound Replay:

Silicon photovoltaic cell; exciter lamp 6 V, 5 A

Magnetic Sound Replay:

35 mm film 4-channel sound heads 380 or 50 Ohm
at 800 Hz
70 mm film 6-channel sound heads 380 or 50 Ohm
at 800 Hz

Changeover:

Light cutoff: electro-magnetic

Sound: operating contact for relay changeover

Light Source:

900 W xenon lamp: approx. 4000 lm, in accordance with
German Standard DIN 15749
1600 W xenon lamp: approx. 9000 lm, in accordance with
German Standard DIN 15749
2500 W xenon lamp: approx. 13000 lm, in accordance with
German Standard DIN 15749
4000 W xenon lamp: approx. 14000 lm, in accordance with
German Standard DIN 15749
6500 W xenon lamp: approx. 22000 lm, in accordance with
German Standard DIN 15749
6500 W xenon drive-in lamp: approx. 23000 lm,
in accordance with German Standard DIN 15749

Colour Temperature:

All xenon lamps approx. 6000° K

Air Extraction Flow Necessary at Lamphouse Air vent:

with 900 W xenon lamp = 2 m³/min.
with 1600 W xenon lamp = 3 m³/min.
with 2500 W xenon lamp = 4 m³/min.
with 4000 W xenon lamp = 5 m³/min.
with 6500 W xenon lamp = 6 m³/min.

Connected Load without Xenon Lamp Rectifier:

approx. 0.5 kVA

BAUER

BOSCH Gruppe

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