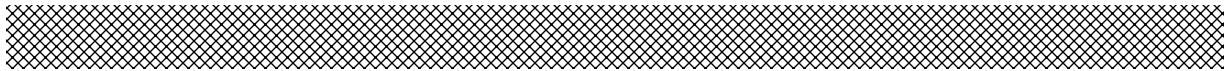


**LUDWIG PANI**

COMPANY FOR STAGE LIGHTING & PROJECTION

# Stage Projector BP 1,2/HMI



User Handbook

April 1995

Type:.....BP 1,2/HMI - Set  
Order Code: .....22201

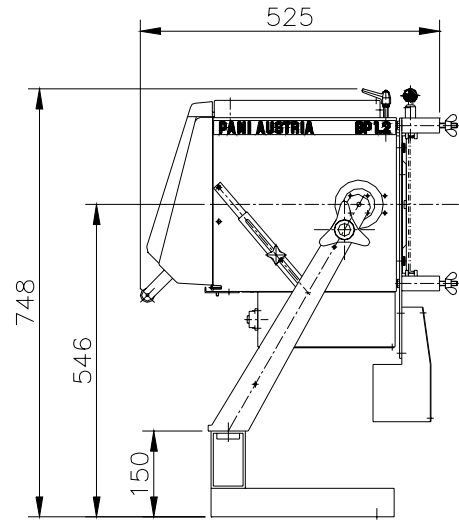
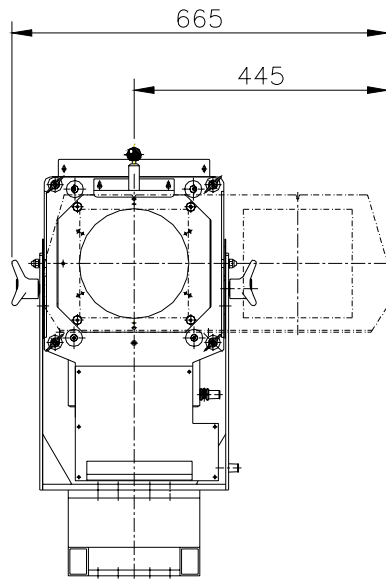
A-1070 WIEN, KANDLGASSE 23    Tel. (+43 1) 521 08-0\*    FAX (+43 1) 526 42 87

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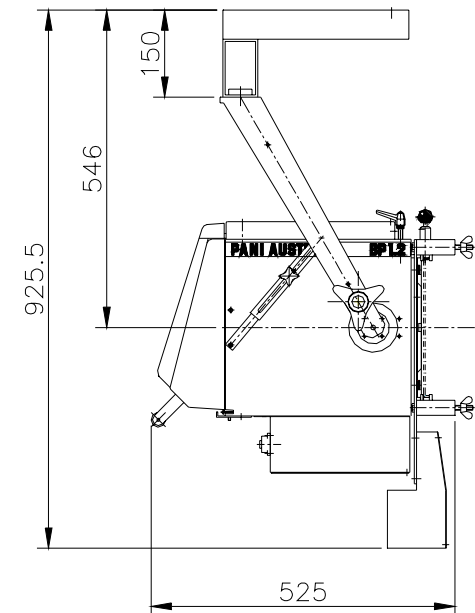
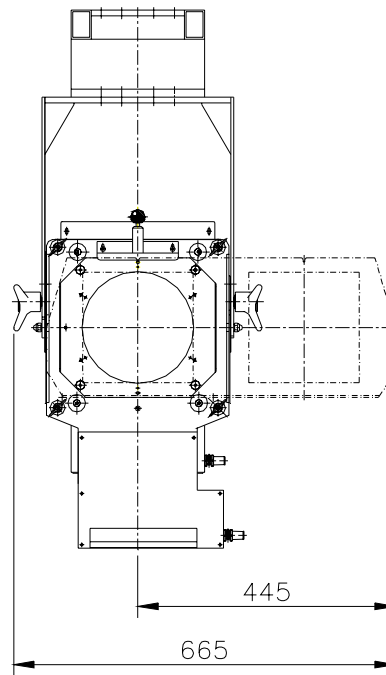
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# 1) Dimension Drawing:

**Projector standing**

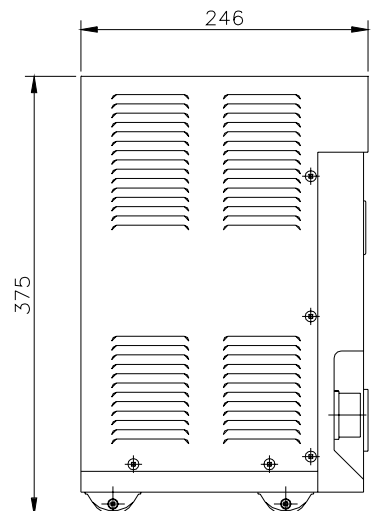
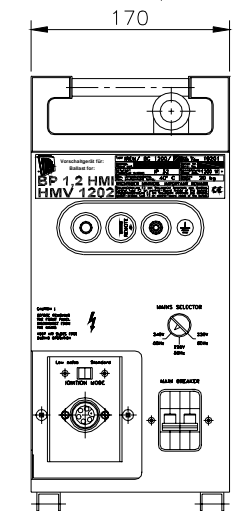


**Projector hanging**



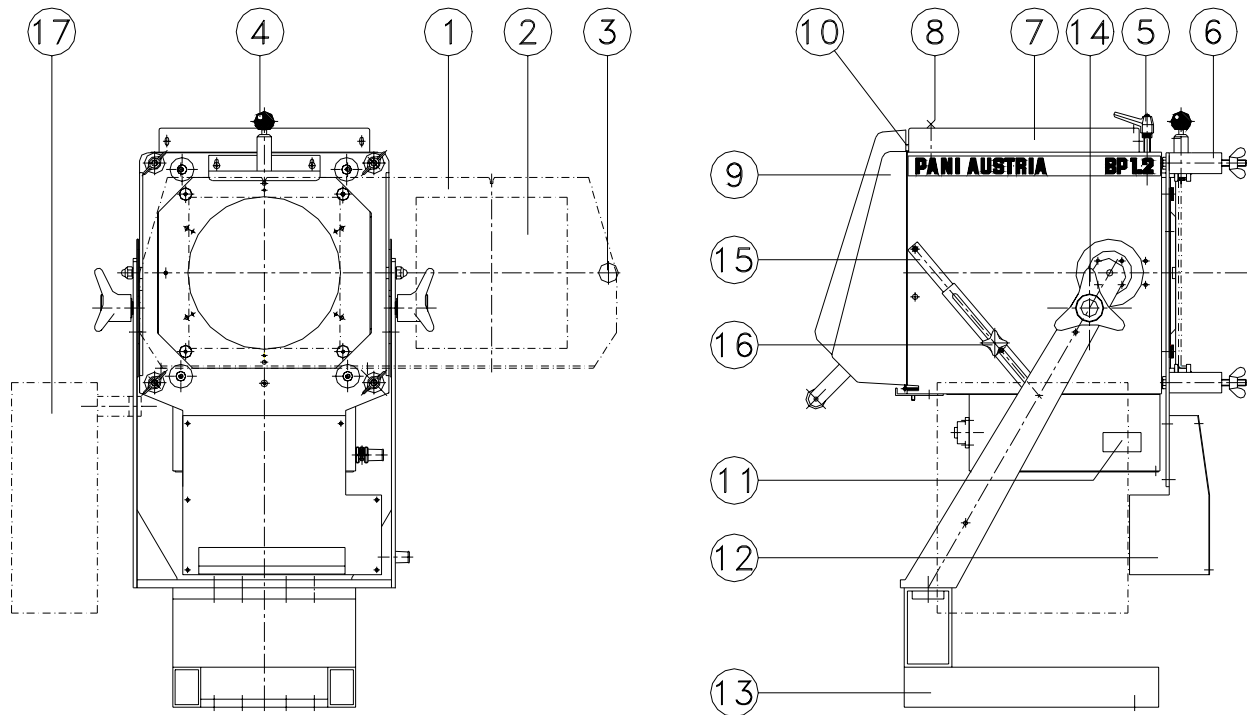
**Ballast**

Type: BC 1200/ E/ A/ J



## 2) Projector

### 2.1) Position Drawing: Projector

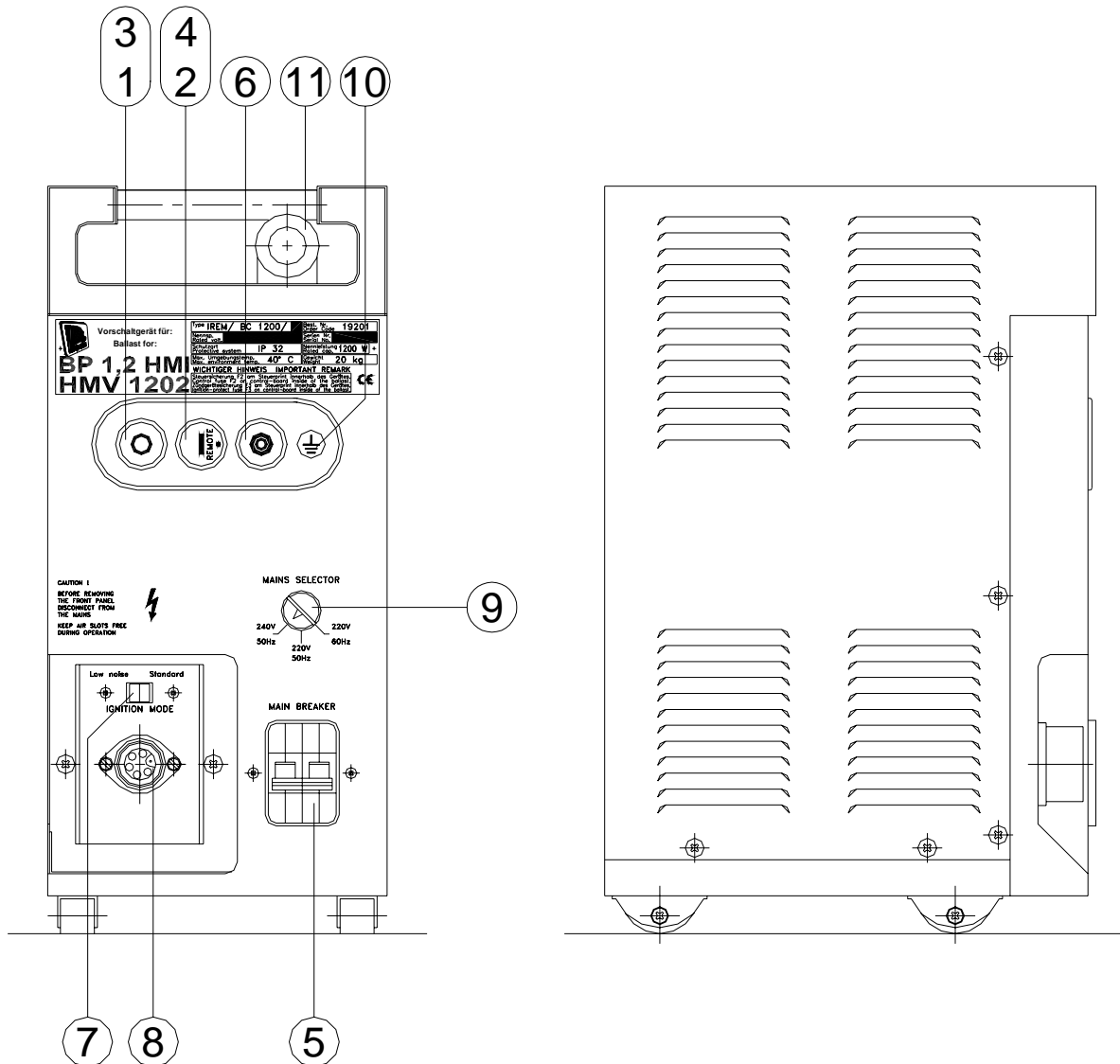


### Legend

- (1) Slide Carrier
- (2) Opening for Slides 18x 18cm
- (3) Ball Grip for Slide Carrier
- (4) Slide Carrier Locking Pin
- (5) Clamping Lever for Rotatable Slide Carrier Support
- (6) Objective Lens Support Bolts with Wing Nuts
- (7) Upper Housing Cover
- (8) Upper Housing Cover Lock
- (9) Rear Housing Cover
- (10) Rear Housing Cover Lock
- (11) Elapsed Hour Counter
- (12) Slide Ventilator Fan
- (13) Mounting Yoke
- (14) Main Locking Grip for Vertical Positioning of Projector (Both Sides)
- (15) Telescopic Bar
- (16) Locking Grip for Vertical Position at Telescopic Bar (Both Sides)
- (17) Positioning of the Control Box G405/..

### 3) Ballast

#### 3.1) Position Drawing - Ballast



### Legend

- (1) Power Indicator
- (2) "ON" Push-button
- (3) "OFF" Push-button
- (4) Remote Mode Switch (Remote Ignition)
- (5) Main Circuit Breaker
- (6) Ground Test Push-button
- (7) Low Noise Switch
- (8) Jack for Connecting Cable
- (9) Voltage and Frequency Selector on Ballast
- (10) Ground Indicator Lamp
- (11) Main Connection Cable

### 3.2) Ballast Control Panel (See 3.1)

- (1) **Power Indicator Lamp**  
This lamp is illuminated when power is connected to the ballast.
- (2) **"ON" - Push-button (Green)**  
When the "ON" - Push-button is momentarily pressed the start cycle is activated. The igniter circuit is closed and high voltage is applied to start the HMI lamp.
- (3) **"OFF" - Push-button (Red)**  
Pressing the "OFF" - Push-button interrupts lamp supply voltage. It is recommended that the unit be allowed to cool for one minute before re-ignition.  
  
**ATTENTION:** Due to the switching functions re-ignition within 10 seconds of shut down is not possible.
- (4) **Remote Switch**  
Rotation of the "ON" - Push-button 90° Clockwise (Remote Mode Position) allows the unit to be automatically ignited when power is applied.
- (5) **Main Circuit Breaker**  
Main Protection 2 - Pole
- (6) **Ground Test Push-button**  
Pressing the Ground Test Push-button illuminates the adjacent indicator lamp. This verifies correct polarity and ground connection.
- (7) **Low Noise Switch**  
In the low noise mode it is possible to silence the sound of the igniter during ignition.
- (9) **Voltage- and Frequency Selection**  
With the Voltage Selector Switch the voltages and frequencies of 240V/50Hz, 220V/50Hz and 220V/60Hz may be selected by rotating the switch to the appropriate position.
- (10) **Ground Indicator Lamp**  
(See No. 6)
- (11) **Main Power Cable**  
3x2,5 square millimeters, two meters long with Schuko Connector.

FOR POSITION NUMBERS SEE PAGE 4

## **4) Assembly**

### **4.1) Mechanical Assembly**

The aluminum housing is supported in a stable, support yoke (stirrup) (13) on either side with adjustable telescoping rails (15). The Slide Stage with slide carrier may be rotated 90° by loosening the clamping lever (5) on the upper side of the housing. The 18x 18cm slide may be exactly positioned by turning the adjustment screw on the slide carrier. The slide carrier (1) is held into exact position by means of spring loaded locking pin. By lifting the ball knob (4), the slide may be freely moved into a new slide position where it locks into position automatically.

FOR POSITION NUMBERS SEE PAGE 5

### **4.2) Electrical Connection**

(See Electrical Schematic 61- 14- 01)

The HMI Stage Projector BP 1,2/HMI is operated with the Ballast BC 1200/E

(Type: D 1015) 1200W 220/240V 50Hz.

Main Power Cable 3 x 2,5mm square x 2 meter long with Schuko connector.

Connecting Cable between Ballast and BP 1,2/HMI: 7x 1,5mm square x 3 meter long with connectors. (Type: H 512).

## 5) Operational Recommendations

### 5.1) HMI Lamp Installation

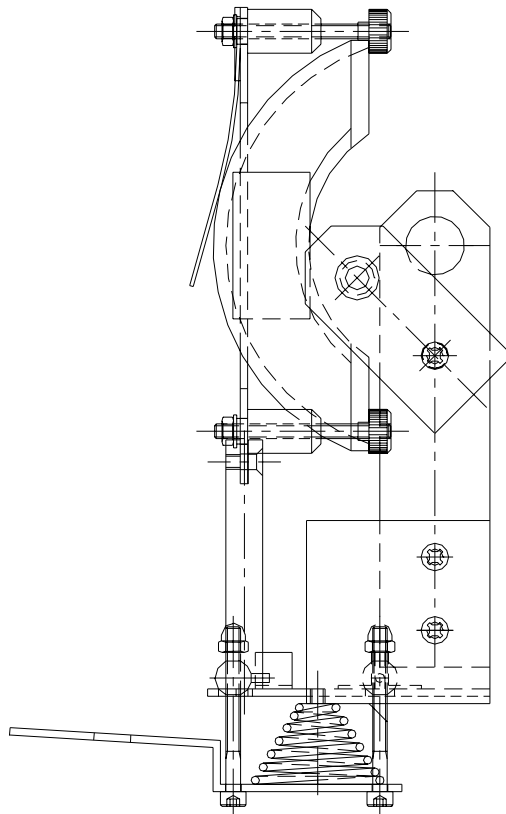
For proper operation of the projector, a double ended HMI - lamp 1200 W is required.  
Order Code: 37201

Disconnect projector from power source. Unlatch the fastener (10) on the upper side of the rear housing cover with a screwdriver. Swing the housing cover open and down. A built in safety switch prevents accidental ignition of the unit while the cover is open.

FOR POSITION NUMBERS SEE PAGE 3

**Fig. 1:**

Tilt back the floating part of the lamp base.

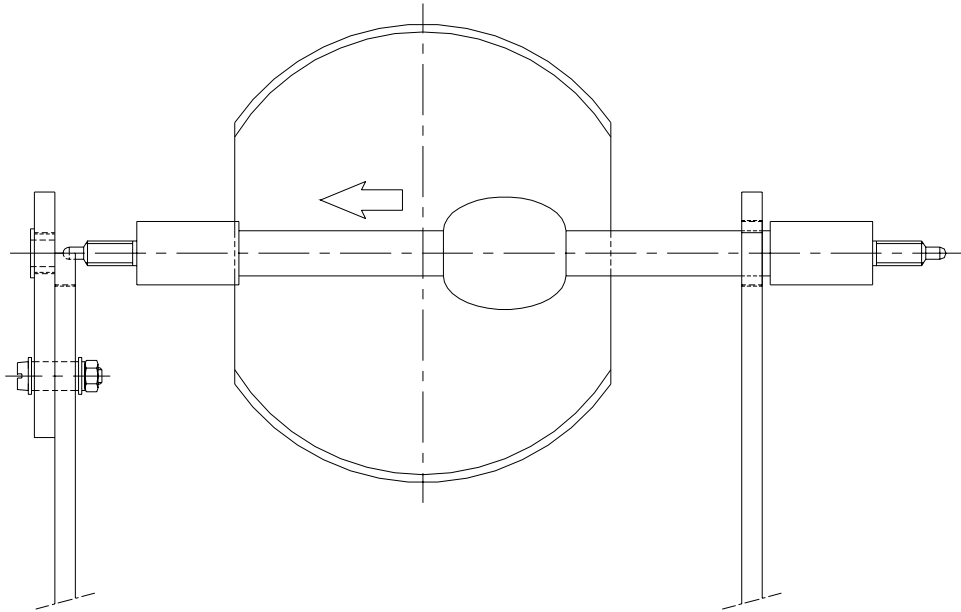




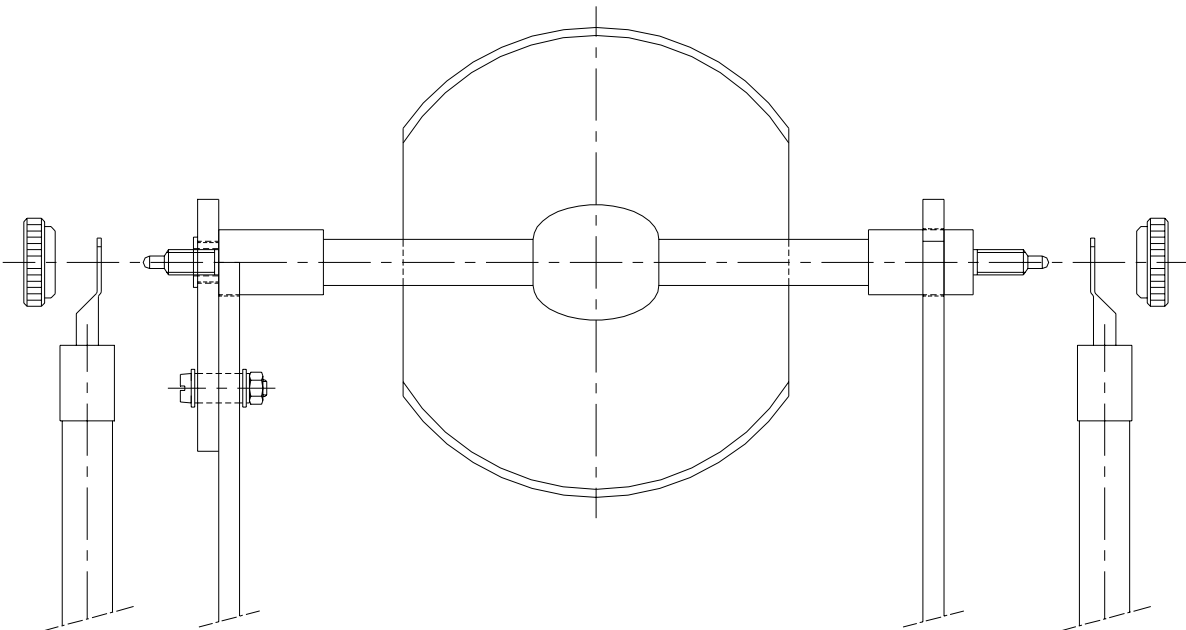
**Fig. 2:**

Slide the 1200W/HMI lamp first to the right into the base. Then lay the lamp into the left side of the base.

**ATTENTION:** *Do not touch the quartz glass of the lamp envelope with fingers.*

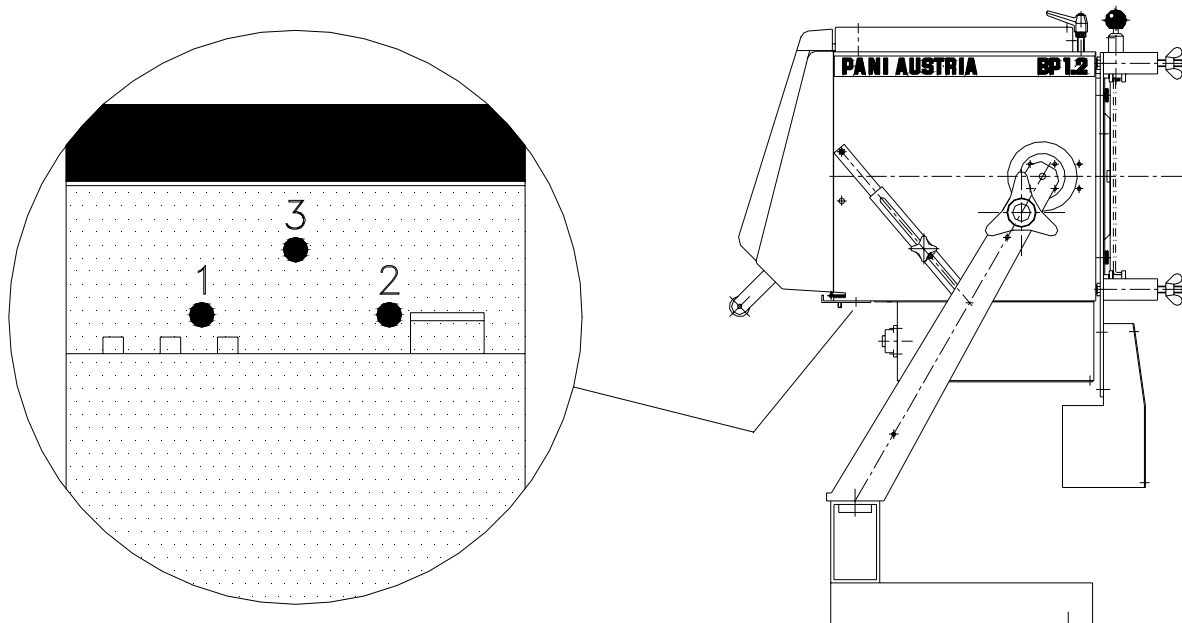
**Fig. 3:**

Attach the right cable terminal and clamp tightly with the supplied milled nuts. Then attach the left one as shown below through the floating lamp base.



## 5.2) Lamp Adjustment

Each projector is carefully adjusted at the factory (Lamp Base, Reflector, Condenser System). With the production tolerances of the HMI lamp, adjustment should be seldom necessary. Should the lamp become misaligned after lamp replacement, it may be adjusted from outside the projector with the three hex head cap screws on the lower side of the housing (Allen Wrench provided 3).

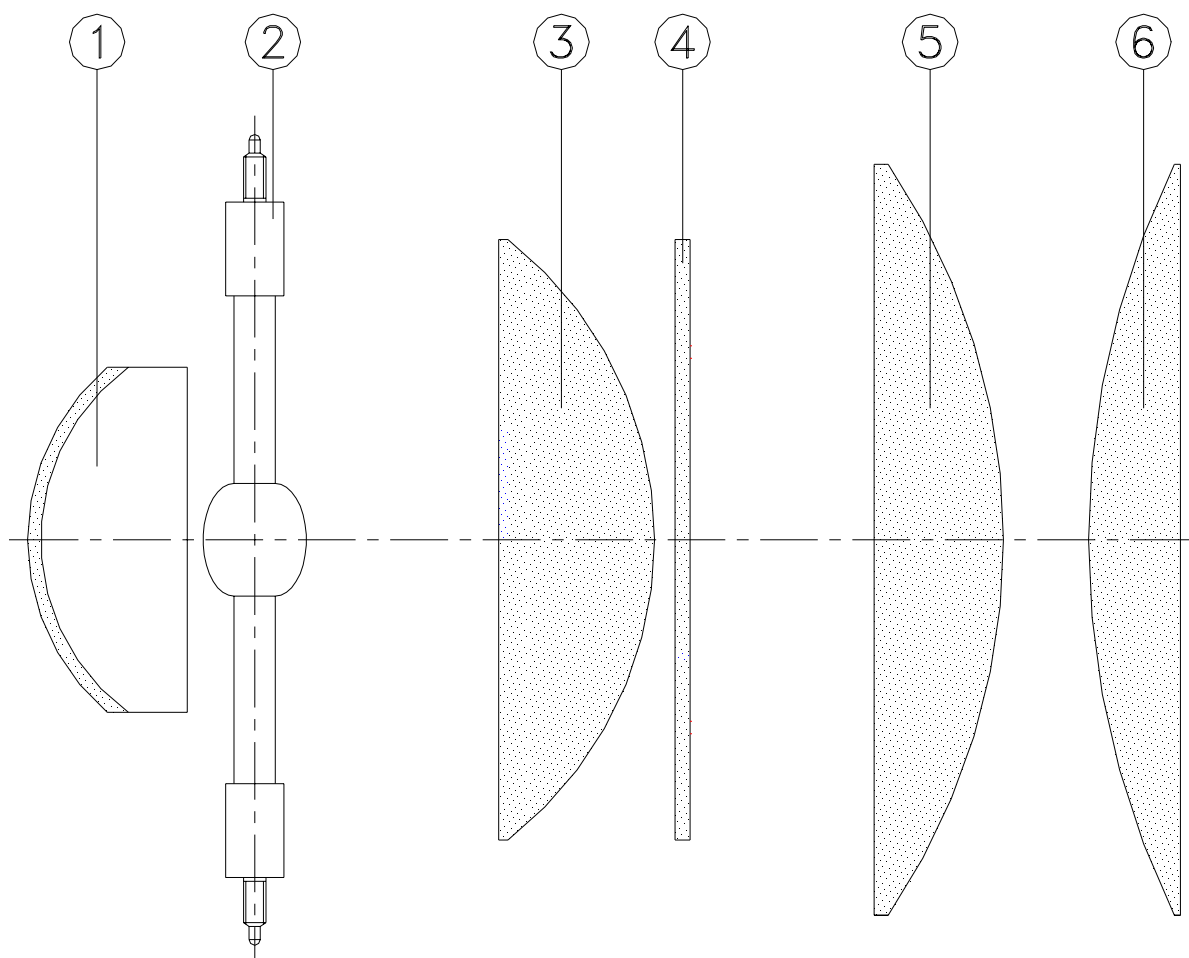


1 and 2 .....for left and right adjustment

3 .....for adjustment along the optical axis

## 6) Position Drawing

Condenser System BP 1,2/HMI



### Legend

- (1) Xenon-Spherical Mirror  $\varnothing$  112 mm
- (2) HMI - Lamp 1200 W /220 V-GS
- (3) First Condenser Lens  $\varnothing$  160 mm
- (4) UV - Filter 160 x 160 x 4mm
- (5) Middle Condenser Lens  $\varnothing$  200 mm
- (6) Front Condenser Lens  $\varnothing$  200 mm

Type	Order Code:
H 1122	Sp Ku 83 37201 PC Durch. 160/200H Type GG 395 PC Durch. 200/340H PC Durch. 200/440

## 7) Objective

### 7.1) Universal Front Condenser Lens

The BP 1,2/ HMI is equipped with a universal front condenser lens for objective lenses with focal lengths from 11 cm to 60 cm.

Universal Front Condenser Lens                      Type:G 305      Order Code: 12401

### 7.2) Projection Objective Lenses

Optional projection objective lenses (focal lengths from  $f= 11$  to 60 cm (and ZOOM objective 25- 60 cm) are mounted on the four support bolts on the front of the projector. Each lens is fixed in place by four wing nuts. The focal length ( $f=$ ) depends upon the projection distance and desired picture size. This is illustrated further with the aid of the projection diagram. Focus is achieved by sliding the objective lens forward or back along the optical axis. The focus position is fixed in place by two milled nuts located on either side of each objective lens.

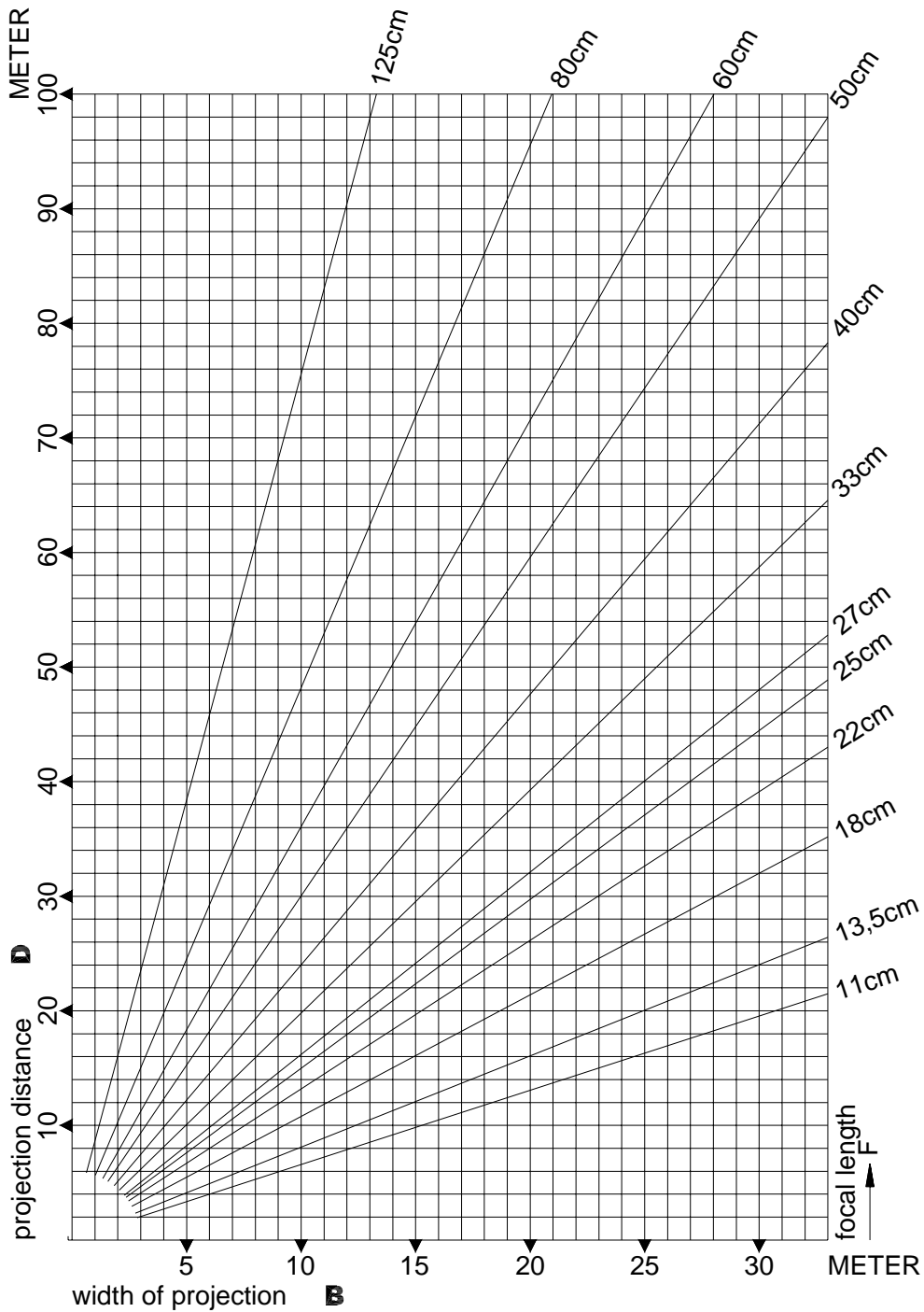
### 7.3) Effects- and Vario - Objective Lenses

To complete the system of projection objective lenses, effects and vario-objective lenses are available. Effects Lenses (focal lengths of  $f=80/100\text{mm}$ , 150mm, 180mm, 250mm and 310mm) provide a strong light output with good color correction, and may be used where an increase in depth or specific distortions are desired.

With the aid of the vario-objective lenses (focal lengths of  $f=20-40\text{cm}$  and  $f=30-60\text{cm}$ ) it is possible to enlarge or reduce images at different speeds. For example in touring theater where image sizes and projection distances vary.

# 8) Projection Diagram

for O= 17cm



calculating formulas

$F = \frac{O \times D}{B + O}$	$B = O \times \left( \frac{D}{F} - 1 \right)$	$D = F \times \left( \frac{B}{O} + 1 \right)$	$O = \frac{B \times F}{D - F}$
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**F ... focal length of projection lens**

**B ... width of the image**

**D ... projection distance (measured from the middle of the objective lens)**

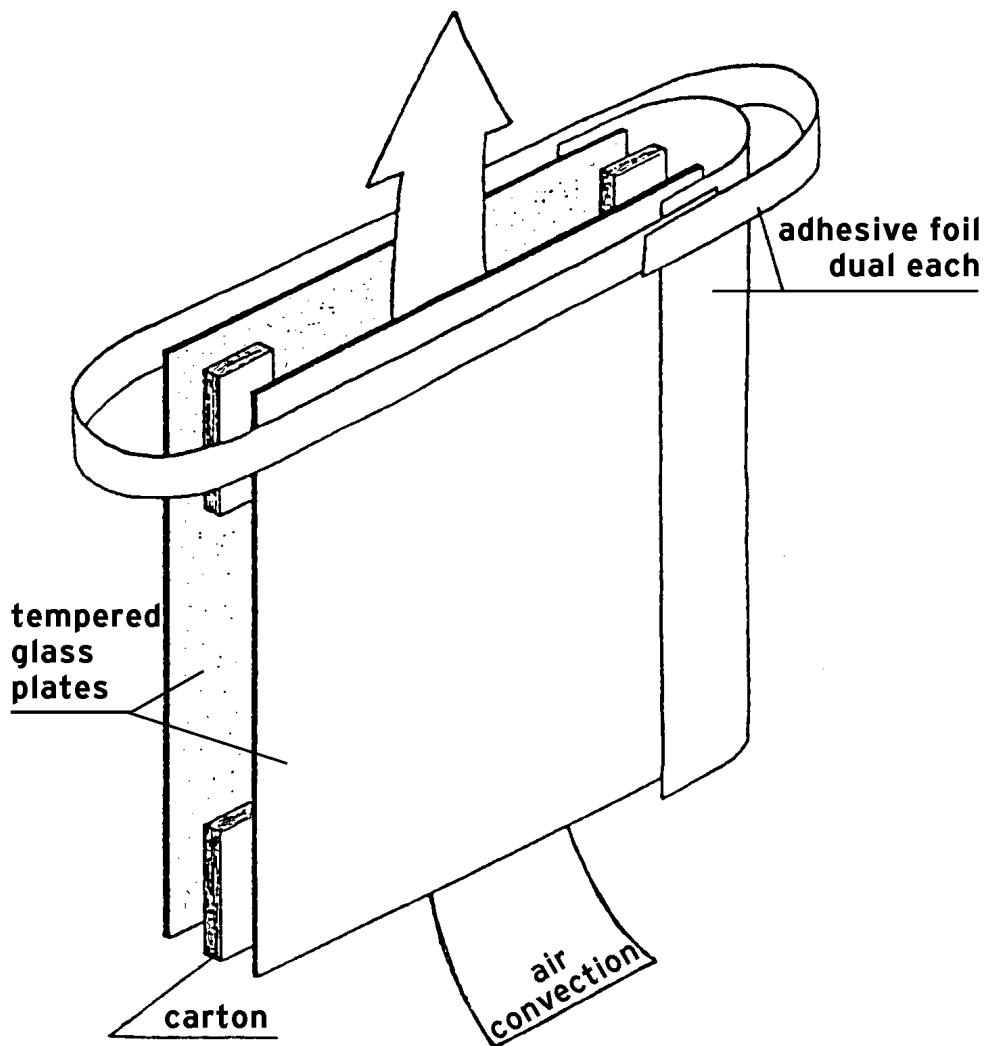
**O ... object size (i.e. the used slide format)**

**used slide format (O)=**      17cm for glass slides  
    15,5cm for filmholder

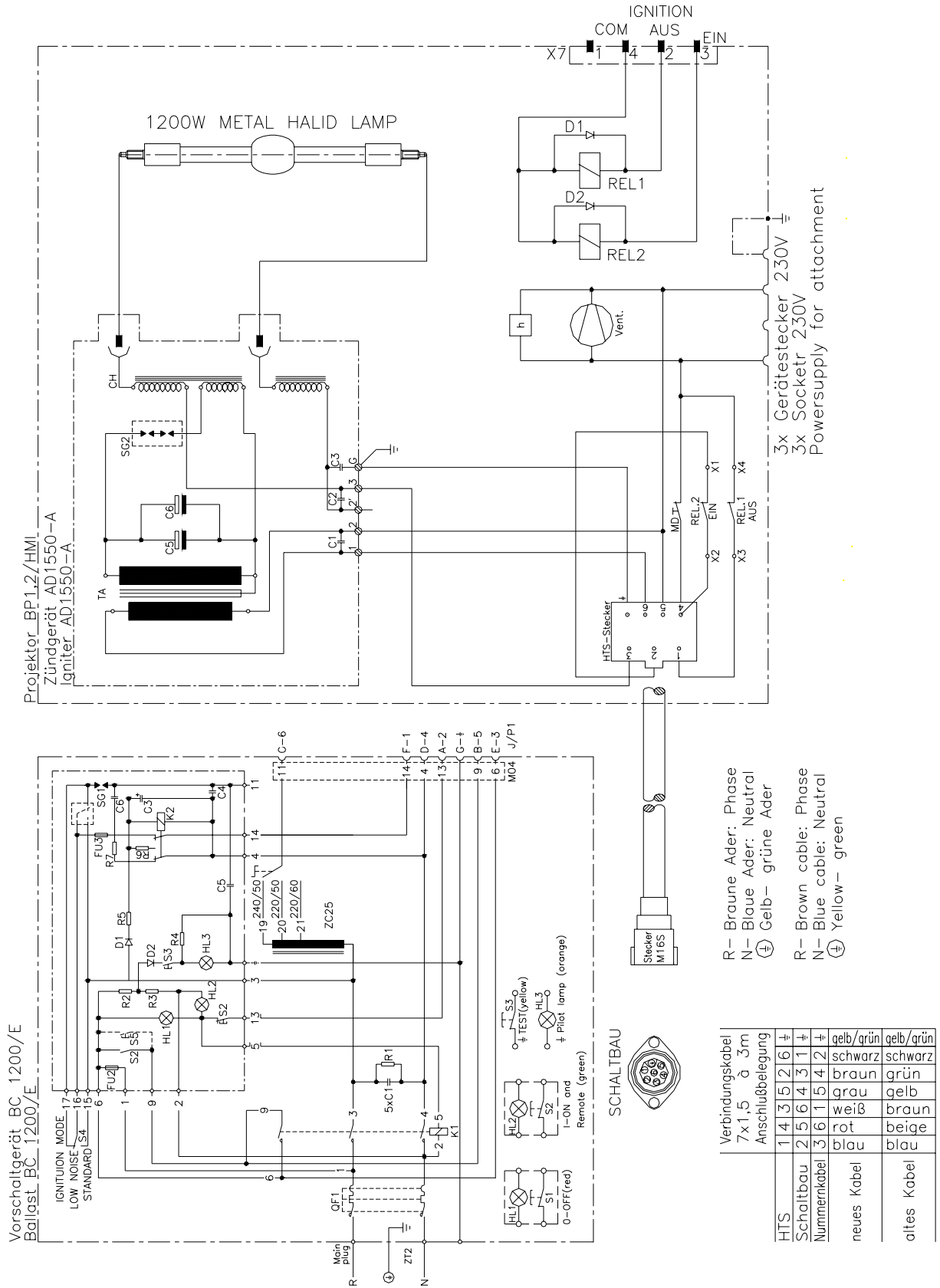
## 9) Slide (Transparency) Material

On the basis of the ever increasing number of available film materials, we do not make any special recommendation, but we will mention our good experience with Agfa Clear/ Agfa, Kodak Overheas/ Kodak and Ciba Chrome Transparent/ Ilford. We can suggest however that only professional photo labs who will care for your work. Not only in which development process is used but also the Quality. Photographic transparencies should not be mounted between glass. The heat build-up will be such that the slides will be destroyed. Necessary cooling of photographic transparencies can only be guaranteed when using Special Slide Frames (Order code: 12802 for 18x18cm and Order code: G 708 for 24x24cm). For simple and fast mounting in these frames we recommend the use of the Special Slide Punching Machine (Order code: 12801 for 18x18cm).

With hand painted slides, two glass plates are required such that the hand painted side is protected by a cover glass. An air gap of 1 mm is achieved by placing 4 cardboard strips between the plates at the corners. The assembly is held together with two strips of tape as shown below.



# 10) Electrical Schematic



## 11) Unit as Delivered

1 HMI - STAGE PROJECTOR BP 1,2 kW

including universal front condenser lens slide carrier, adjustable slide mask, test slide 18 x 18 cm.

1 Ballast 1200 W, 220/ 240V - 50Hz

with 2 meter main cable with Schuko connector and 3 meter ballast cable with connectors.

1 HMI - Lamp 1200W/220V - GS Type: H 122, Order Code:3720

1 Raster Block, Type: G 1583

1 "Null" - Slide (for protection of dimming shutter), Type: G 1581

1 User Handbook

1 Pani "Effects Brochure"

## 12) Accessories

Description	Order Code
Universal Front Condenser Lens	G 305
HMI - Lamp 1200W/220V	H1122
Dimming Shutter /II with electronic control for gray scale plates 18x18cm including control box and interchangeable extension rails for objective lenses f=11 - 27cm, 33 - 40cm, 50cm, 60cm, 80cm and 125cm	G 405/II
Dimming Shutter / PCS with processor control for gray scale plates 20,5x22cm including control box 120/220 V 50 Hz. external control 0 to +/-10 VDC and 120 / 220VAC phase clipped dimmer voltage, Dampening for smoothing of 8 bit control voltage steps, selectable light linearity.	G 405/PCS
Interchangeable extension rails for objective lenses f=11 - 27cm	G 405/27
Interchangeable extension rails for objectives f=33, 40, 80 and 125 cm	G 405/40
Interchangeable extension rails for objective f=50	G 405/50
Interchangeable extension rails for objective f=60	G 405/60
Special Film Frame 18x18cm for photographic transparencies	G 508
Tempered Glass Plate 18x18cm	G 502
Test slide with raster grid on tempered glass 18x18cm	G 506
Test slide with raster grid on film 18x18cm	G 509
Motor Drive for Slide Carrier	G 520/18
Automatic Slide Carrier 15 Random Access	AMD - 15
High Performance Projection Objective Lens f=11cm/1:1,8	G 903/II
High Performance Projection Objective Lens f=13,5cm/1:1,8	G 904/II
High Performance Projection Objective Lens f=18cm/1:2,6	G 918/II
Projection Objective Lens f=22cm/1:2,8	G 907
Projection Objective Lens f=27cm/1:3	G 908
Projection Objective Lens f=33cm/1:3,5	G 909



Description	Order Code
Projection Objective Lens f=40cm/1:4	G 910/II
Projection Objective Lens f=50cm/1:4,5	G 911/II
Projection Objective Lens f=60cm/1:3,8	G 912
Projection Objective Lens f=80cm/1:4,5	G 913
Projection Objective Lens f=125cm/1:7,6	G 914
ZOOM Projection Objective 25 - 60 cm / 1: 2,7 - 3,9 without motor drive	12433
Effect Objective Lens f=85/100 mm	G951
Effect Objective Lens f=110 mm Wide Angle	G952
Effect Objective Lens f=150 mm	G953
Effect Objective Lens f=180 mm	G954
Effect Objective Lens f=250 mm	G957
Effect Objective Lens f=310 mm	G958
Effect Vario Objective f=20-40 cm motorized with control box 220 V	G 915
Effect Vario Objective f=30-60 cm manual	G 916

### 13) General Technical Data

Tilt Angle Range of Projector:

12°down

35°up

Protection Class: IP 20

Max. Operating Temp. 30°C

Weight:	Unpacked	Packed
Projector	37 kg	45.7 kg
Ballast:	19 kg	21 kg
Carton Dimensions:		
Projector:	60 x 47 x 72cm	
	0,20 cubic meters	
Ballast:	29 x 21 x 41cm	
	0,03 cubic meters	

#### Ballast:

Source Voltage: 220/240 V 50Hz.

Current: 7 A

Circuit Protection Required: 20 A

#### Lamp Data:

Performance	1200 W
Rated Life	750 Hours
Color Temperature	5600°K
Total Light Flux	110 000 lumens
Lamp Voltage	100 V
Lamp Current	13.8 A
Lamp Base	SF <sub>c</sub> 15,5
Ignition Voltage	50 kV

## 14) Spare Parts

### BP 1,2/HMI

Main Assy. No.: 56-

Description	Order Code	Qty./Unit
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#### Housing

Main Assy. No.: 56- 01

Cooling Fins	5302	1
Holding Plate for Ventilator	68- 36-	1

#### Rear Section Housing

Main Assy. No.: 56- 02-

Reflector Adjustment Screws	56- 01- 13	3
Ball Nuts	56- 01- 31	3
Lamp Adjustment Springs	56- 01- 19	1
Floating Lamp Support	61- 11- 05	1
Fixed Lamp Support	61- 11- 06	1
Terminal Block for Lamp	61- 11- 08	1
Lamp Support Case (Right)	61- 11- 09	2
Case Clamp	61- 11- 11	1
Wood Grip	PN 10108	1
Reflector Ø 112	Sp Ku. 83	1
Overlay	12232 vern.	1
Ventilator	QLZ 06/0018- A17- 2513- 15 dg	1
Reflector Retainer Springs	56- 01- 30	1

#### Igniter Housing

Main Assy. No: 56- 03-

Igniter	AD 1550/A	1	
Elapsed Hour Counter	A 1900 00005 AO 220V 50 Hz.	1	
Connector	31. 11. 000	3	
Igniter Cables 2xL=390mm	Type P 26 931 1x4 squared	1	
Annex Housing	HB 6. AG- LB	42. 50. 06. 00	1
Pin Insert	HB 6. Sti. S	42. 10. 06. 00	1

#### Yoke (Stirrup)

Main Assy. No.: 56- 04-

Yoke	56- 01- 23/a	1
Base	56- 01- 28	1
Telescoping Adjustment consisting of:		
Clamping Piece	5351	2
Guides	5352	2
Spacers	5306	2ea
Cross Grip Bolt	GN 6335. 4- SK- 32- M6- 10	2
Three Star Grip	GN 5340- 100- M8- E	2

Description	Order Code	Qty./Unit
-------------	------------	-----------

**Ventilator Housing**

Main Assy. No.: 56- 05-

Housing: Ventilator	56- 05- 14	1
Cover	56- 05- 15	1
Glide Piece for Telescoping Adjustment	56- 01- 27	2
Ventilator	QLZ 06/ 1800- A18- 2513- 16dg	1
Wing Nuts	M 8 DIN 415	4

**Optical Materials**

Main Assy. No.: 56- 06-

Plano Convex Lens (Lamp Side)	Ø 160 mm, f=200mm	1
Plano Convex Lens (Middle Lens)	Ø 200 mm, f=340mm	1
Plano Convex Lens (Front Lens)	Ø 200 mm, f=440mm	1
UV Filter	Type GG 395 160 x 160 x 4 mm	1

**Electro-Mech. Parts**

Main Assy. No.: 56- 07-

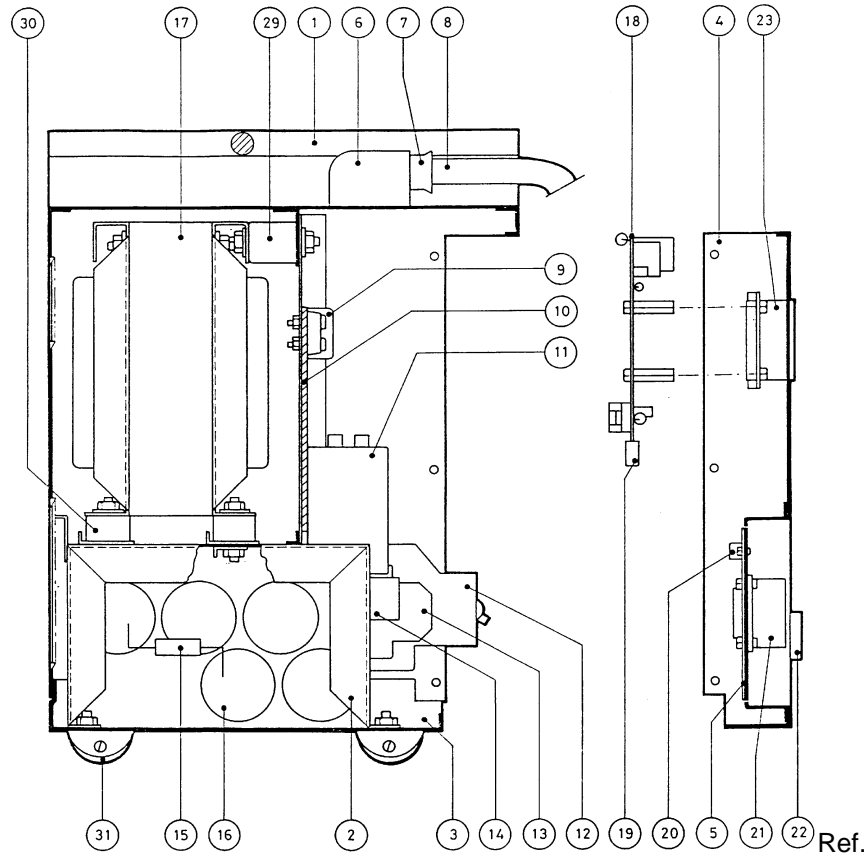
Connecting Cable 3m complete without Connector

Connecting Cable	Ölflexkabel 7x 1,5 2	Nummernk.	1
Connector Housing	HB. 6. StS. 1. 13	42. 32. 06. 03	1
Case Insert	HB. 6. Bu. S	42.20. 06.00	1
Bushing	SH. 13,5	52.00. 08. 60	1
Rubber Sleeve	SNR 13/13	52.00. 20. 30	1

Connector for Cable with IREM Ballast

Connector with Strain Relief	M 16 S	1401. 0396 674	1
Pin Support	E 2- 6 St+PE	1401. 0432 714	1
Contact Pins	1, 58 C 1,5	1440. 0319. 804	6
Contact Case	CB1,58C1,5	1440. 0319. 564	1
Spout (Tülle)	T 1- 12/13	1441. 0388 491	1

**Ballast BC 1200/ E**



Order Code	Ref.	Qty./Unit	Description
1		71111506	Housing
2		71104762	Capacitor box
3		71115310	Bottom
4		71011955	Front Panel
5		81014176	Connector Plate
7		87534075	Cable Clamp
8		93643016	Input Cable
9		84620063	Terminal board
11		88445000	Power relay
12		88502120	Magnetothermal Protection
13		84610156	Earth terminal
15		88205275	Resistor
16		88320030	Capacitors
17		63090151	Reactor
18		78800550	Controls Pb Ass'y
20		88901500	Slide Switch
21		79000172	Female Output connector Ass'y
22		87435204	Magnetothermal Protection Frame
23		74140003	Frame for Pushbuttons
25		88430120	Voltage selector switch
27		87444277	Voltage Selector Knob
29		88941400	Shock absorber H 25
30		88941401	Shock absorber H 15
31		87330020	Feet