

LUDWIG PANI
COMPANY FOR STAGE LIGHTING

Daylight - Followspot H MV 2500 ZOOM



User Handbook

March 1994

Nennspannung	230 V
Rated voltage	50 Hz/ 60 Hz

Order Code:

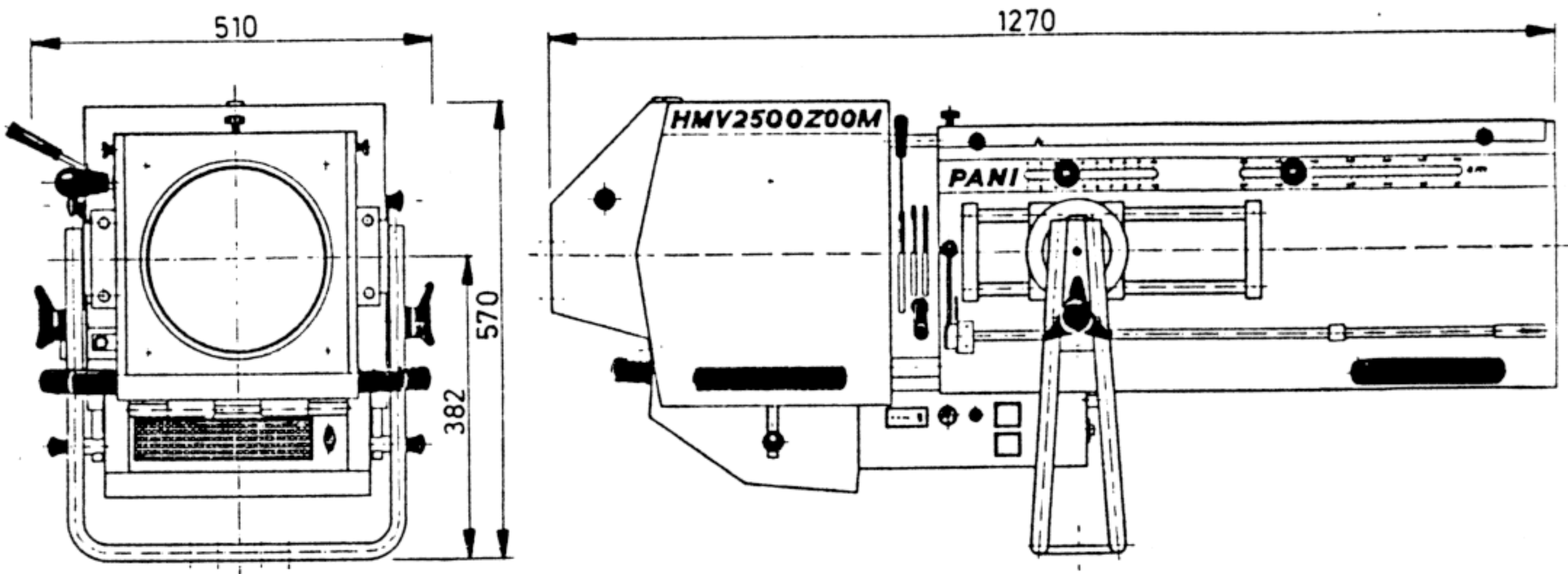
H MV 2500 / ZOOM HMI - SET

CONTENTS

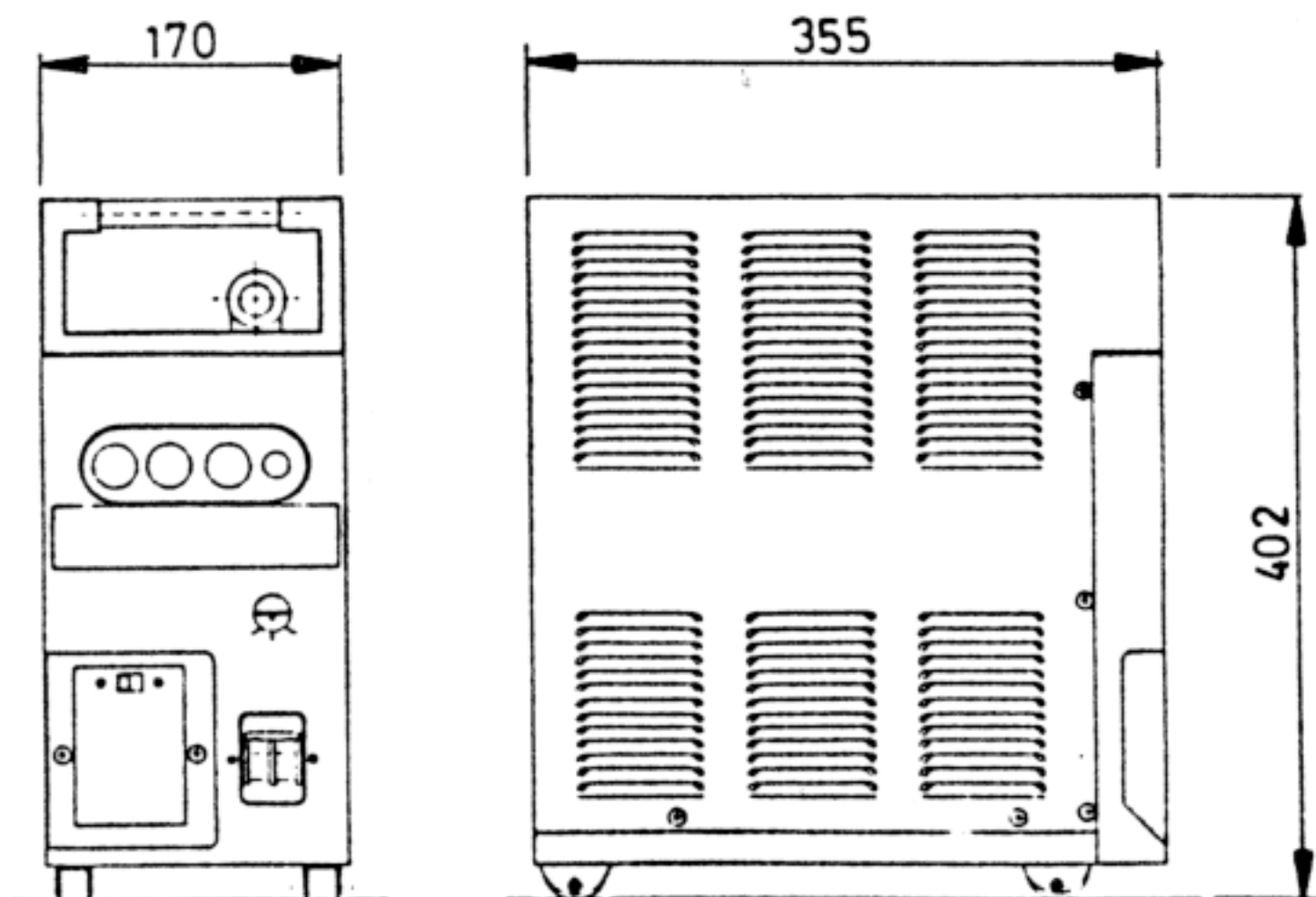
	Page
1) Dimension Drawing: Follow Spot and Ballast	3
2. 1) Nomenclature: HMV 2500 ZOOM Legend for 2.1)	4
2.2) Nomenclature: Ballast (Legend for 2.2)	5
2.3) Ballast Control Panel	6
3) Mechanical Assembly	7
3.1) Zoom Housing	7
3.2) Iris Housing	7
3.3) Reflector Housing	7
3.4) Lamp Housing	7
3.5) Lamp Insert Housing	8
4) Operation of the Spotlight	8
4. 1) HMI Lamp Installation	8
4.2) Iris and Four Blade Shutter	8
4.2.1) Iris	8
4.2.2) Four Blade Shutter	8
4.3) Objective Adjustment	9
4.4) Filter Insert	9
4.5) Balance Point Adjustment	9
4.6) Transporting the Followspot	10
4.7) Electrical Section	10
4.8) Ballast and Ignition Sequence	10
5) Accessories	11
6) Technical Data	12
7) Spare Parts	13

1) Dimension Drawing:

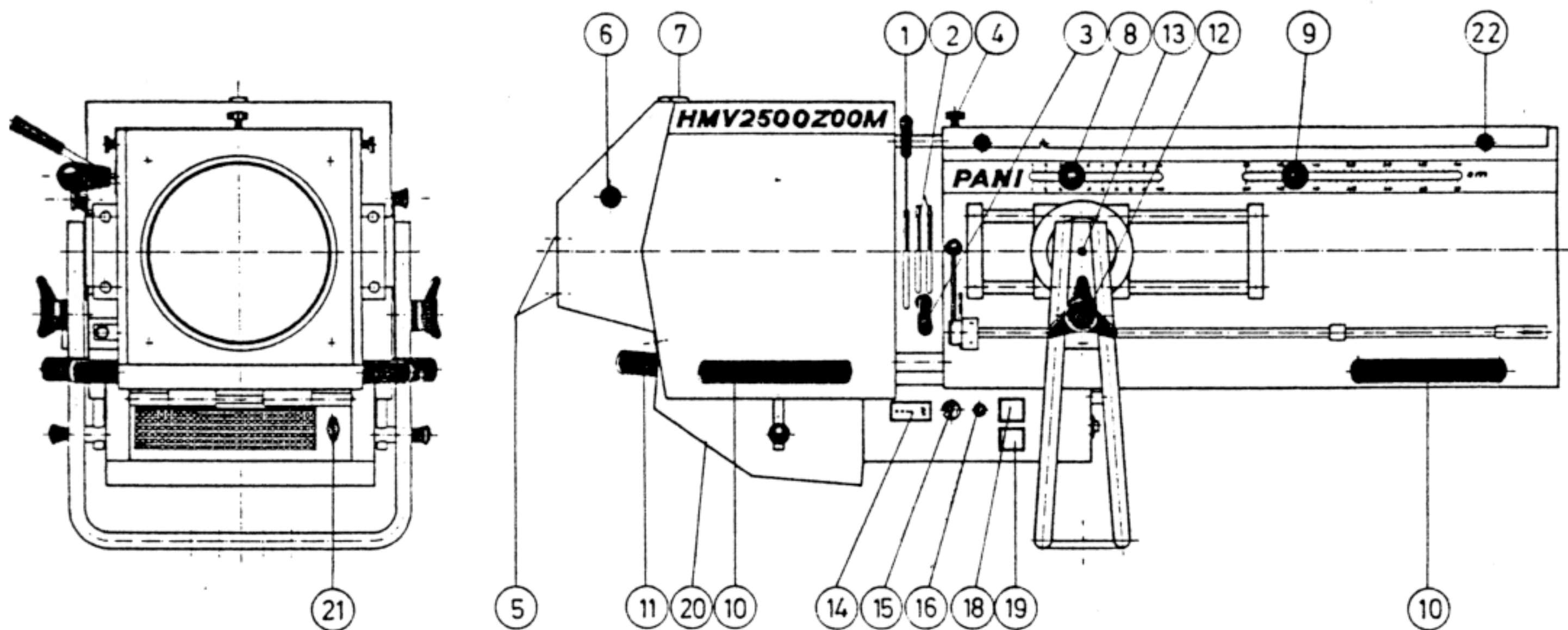
Daylight - Followspot 2500 2500W ZOOM / HMI



Ballast
Type: BC 2500 E



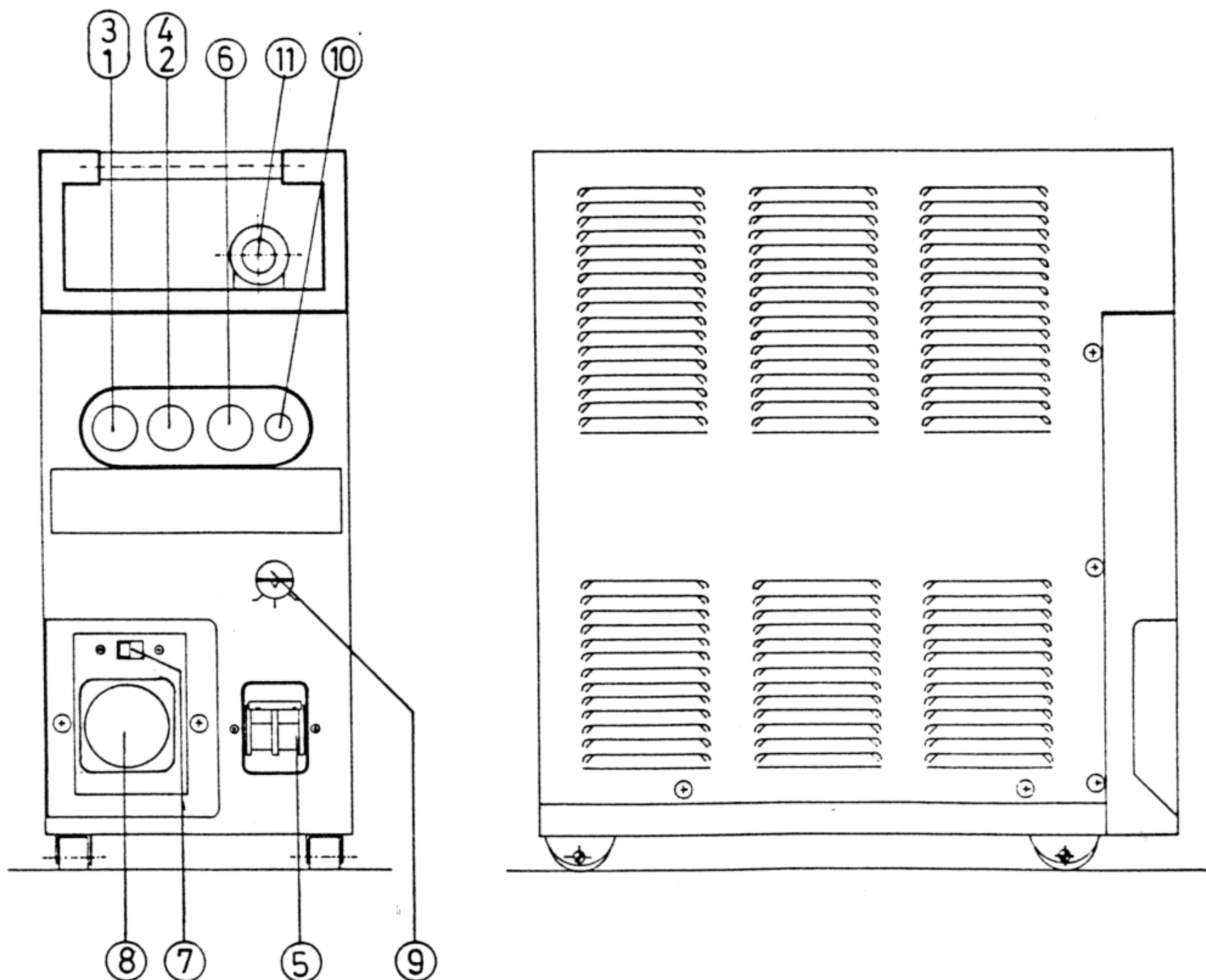
2.1) Nomenclature: HMV 2500 ZOOM



LEGEND

- 1) Iris Adjust
- 2) Rotating 4 - Blade Shutter
- 3) Lever for Rotating Iris Housing
- 4) Locking Screws for Rotating Iris Housing
- 5) Lamp Adjustment Screws
- 6) Grip for Lamp Insert Housing
- 7) Lock for Lamp Insert Housing
- 8) Zoom Lens Adjustment Handle
- 9) Focus Adjust
- 10) Support Handle
- 11) Lamp Housing Grip
- 12) Locking Grip
- 13) Cap Nuts for Balance Adjustment
- 14) Hour Counter
- 15) Ventilator - Built in Fuse
- 16) Igniter - Built in Fuse
- 17) Main Power Indicator
- 18) ON - Push-button
- 19) OFF - Push-button
- 20) Control Cable Connector
- 21) Coupling
- 22) Milled Screw

2.2) Nomenclature: Ballast



LEGEND

- 1) Power indicator Lamp
- 2) "ON" - Push-button (Green)
- 3) "OFF" - Push-button (Red)
- 4) Remote Switch
- 5) Main Circuit Breaker
- 6) Ground Test Push- button
- 7) Low Noise - Switch
- 8) Control Cable
- 9) Voltage and Frequency Selector Switch
- 10) Ground Indicator Lamp
- 11) Main Power Cable

2.3) Ballast Control Panel

- 1 **Power Indicator Lamp**
This lamp is illuminated when main 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 few minutes before re-ignition. (Hot re-strike is still 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**
1 Automatic
- 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.
- 8 **Control Cable**
The control cable connects the ballast to the projector.
- 9 **Voltage - and Frequency Selector**
With the main power selector switch, the voltage and frequencies of 240 V / 50Hz, 220V / 50Hz or 220 V / 60Hz. may be selected
- 10 **Ground Indicator Lamp**
See #6
- 11 **Main Power Cable**
3x4 square millimeters, two meters long with Schuko Connector.

3) Mechanical Assembly

The Followspot consists of 5 main sections

1. Zoom Housing
2. Iris Housing
3. Reflector Housing
4. Lamp Housing
5. Lamp Insert Housing

3.1) Zoom Housing

The "Zoom Housing" (Lens Housing) is constructed of rigid 2mm sheet metal. The lenses are mounted in steel plates, held by pressure pieces and can be positioned as desired along 4 support rods. Cleaning of the lenses may be performed by washing with warm water.

3.2) Iris Housing

The "Iris - 4 Blade Shutter Housing" is a 1 mm thick sheet steel ring. Built into this housing is an iris diaphragm consisting of 16 leaves. With the adjustment handle (1), the diameter of the circle of light may be changed. With the built in rotating "4 - Blade Shutters", various parallel shapes can be projected. The material of the shutters is tempered steel.

FOR NOMENCLATURE SEE PAGE 4

3.3) Reflector Housing

The "Reflector Housing" is constructed of rugged 2mm sheet metal. The spherical and ellipsoidal reflectors are mounted with spacers on a 4mm thick aluminum plate. The reflector is surfaced with a highly polished electro-chemical coating. The reflector may be cleaned with warm water and a soft cloth.

3.4) Lamp Housing

The "Lamp Housing" contains the entire electrical section of the spotlight. This is constructed of 1.5mm rigid sheet metal. The lamp house consists of the following built in components: Two ventilators for iris cooling, igniter, circuit breaker, hour counter, ON - push-button, OFF - push-button and connector for the ballast.

3.5) Lamp Insert Housing

The "Lamp Insert Housing" is constructed of 2mm thick sheet metal. It is guided by two steel rods. The lamp along with base and adjustment mechanism are mounted into the lamp insert housing.

4) Operation of the Spotlight

4.1) HMI Lamp Installation

For operation of the spotlight a 2500 watt HMI lamp (Order Code: H 1253) is required. Open the lock (7) and pull out the lamp insert housing to the stops. Then insert fully the lamp into the lamp base cautiously. When installing a lamp it is important to observe that the glass envelope of the lamp not be touched! The protective sleeve of the lamp should thus remain on the lamp until it is inserted. When the lamp is installed the push the housing forward completely and fasten the lock. For safety reasons a built in micro switch prevents ignition of the lamp when the spotlight is open. For this reason it is important insure that the spotlight is closed correctly, otherwise lamp ignition is not possible. Should the spotlight be opened during operation the micro switch will interrupt power and shut the spotlight off.

With the aid of three adjustment screws (5) the lamp may be adjusted as desired. Lamp position is factory set and should seldom require adjustment.

FOR NOMENCLATURE SEE PAGE 4

4.2) Iris and Four - Blade Shutters

4.2.1) Iris

With operation of the iris lever (1) the diameter at the image plane (iris) may be adjusted from 55mm down to 8mm.

FOR NOMENCLATURE SEE PAGE 4

4.2.2) Four - Blade Shutters

The 4 - Blade Shutters are operated by means of two levers (2). One lever operates one pair of shutters, which are opposed positioned (parallel) and can be run toward or away from each other. The second lever operates an additional pair of shutters, which are also parallel but mounted 90° from the first pair. With this horizontal and vertical shutter- system one can produce any desired rectangle.

A further effect may be achieved by rotating the iris housing. Loosen the locking screw (4) (turning to the right is open, to the left is locked). The iris housing may be easily rotated up to 45° with the lever (3).

FOR NOMENCLATURE SEE PAGE 4

4.3) Objective Adjustment

The focal length of the spotlight may be varied from 20 - 50 cm. By turning grips (8) and (9) the lenses are either locked or can move freely. When the zoom lens lever (8) is loosened, the zoom lens may be adjusted. Each position changes the focal length and thus the cone of light (diagram). The adjusted focal length can be viewed on the scale. The focus lever (9) is used to adjust the sharpness of the image of the spotlight. A neutral scale provides an additional adjustment value. For distances greater than 20m it is not necessary to adjust sharpness when using the zoom function.

On the upper zoom housing are 4 milled screws (22). Loosening these allows the lens cover to be removed. When the cover is off, the lenses may be cleaned as described in section 3.1.

The guide rails should never be oiled or greased.

FOR NOMENCLATURE SEE PAGE 4

4.4) Filter Insert

On the front of the spotlight is the filter insert frame. This insert is constructed to hold filter frames of 300 x 300 mm. Similar accessories (see section 5) with an insert plate of 4 x 300 x 300 mm with a central aperture may also be mounted.

4.5) Balance Point Adjustment

The spotlight is supported by a specially constructed positioning mount. With the clamping grip (12) the spotlight is fixed. When the spotlight is used with its various accessories (see section 5), the support point (fulcrum) may be shifted to optimize balance. Loosening the cap nuts (13), allows the support yoke to be shifted to the desired position. When the cap nuts (13) are re-tightened the new balance point is fixed.

FOR NOMENCLATURE SEE PAGE 4

4.6) Transporting the Followspot

Four Transport grips (10) are provided for transportation of the follow spot. Grip (11) at rear should never be used to carry the unit.

FOR NOMENCLATURE SEE PAGE 4

4.7) Electrical Section

An elapsed hour counter (14) is built into the lamp housing to monitor the hour of operation of the unit.

A built in 1.25 A fuse (15) protects the ventilator circuit.

A built in 10A fuse (16) protects the igniter.

A momentary push of the ON - push-button (18) closes the igniter circuit and provides a high voltage pulse to ignite the HMI lamp.

A momentary push of the OFF - push-button (19) cuts power to the lamp. It is recommended that the spotlight be allowed to cool for few minutes before re-ignition ("Hot Re-strike" is still possible).

The coupling (21) is an unregulated output for 220V (Pins 1 and 2). This may be used to provide power for various accessories.

FOR NOMENCLATURE SEE PAGE 4

4.8) Ballast and Ignition Sequence

For the operation of the 2500 W HMI lamp a ballast is required. This ballast is connected to the spotlight via a cable, connector and coupling. The main power for the ballast is 100/ 120/ 220- 240 V 50/ 60 Hz (on selection), supplied through the main cable (see schematic). A built in automatic circuit breaker (5) provides protection for the unit.

Ignition Sequence

There are 4 operational elements on the ballast for the ignition sequence.

1. Ground Indicator Lamp

When the ballast is connected to the mains, the ground indicator lamp (10) must be illuminate. This indicates that a functional equipment ground is present.

2. ON - Push-button (Green)

When this button (2) is momentarily pressed, the lamp ignites and will reach full intensity in about 1 minute.

3. OFF - Push-button (Red)

When this button (3) is momentarily pressed, the lamp power is switched off and the spotlight is extinguished. A re-ignition (hot re-strike) may now be carried out.

4. Remote Switch

When the ON push-button is rotated 90° clockwise, the unit is in remote operation mode. In this case the unit will ignite automatically when power is applied (appropriate for remote operation).

FOR NOMENCLATURE SEE PAGE 5

5) Accessories

	Order Code
Ballast 2250 W, 220/240V - 50Hz.	D 1525
8m Extension Cable (Secondary Cable)	D 1511
HMI - Lamp 2500W/220V; G38	H 1253
Color Filter Frame	FR 300
Diffuser with insert device	D 1513
Conversion Filter to 3200°K, complete with Frame 300 x 300mm	D 1509
UV Transmission Filter (Black Glass), complete with Frame	D 1510
Color Changer for 6 Colors, for Hand Operation, Insert Guide	D 1507
Dimming Shutter 0 - 100%, for Hand Operation, complete with Linkage	D 1504
Dimming Shutter 0 - 100%, with Electronic Control including Control Box	D 1505
Rolling Stand with built-in Ball Bearing Head	SZ 131

6) Technical Data

Ballast Specifications:

Primary Voltage	220/ 240 V50Hz (100/ 120 V 60 Hz on selection))
Primary Current	15.7 A
Main Circuit Breaker	20 A
Secondary Power Reading (2 minutes after ignition)	17.4 A
Secondary Power Reading (during ignition)	21 A
Ignition Voltage	50 KV

Lamp Data:

Wattage	2500W
Source Voltage	115 VAC
Lamp Life	350 Hours
Color Temperature	5500K
Total Light Flux	200, 000 lm
Lamp Voltage	83 V
Lamp Current	25, 6A

Weight:	Unpacked	Packed
Followspot:	83 kg	127 kg
Carton Size:	148x66x76 cm	
Ballast:	29.5 kg	31 kg
Carton Size:	50 x30x48 cm	

7) Spare Parts

HMV 2500 ZOOM

Main Assy. No.: 65-

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

Lamp Housing

Main Assy. No.: 65-01-

Connecting Plate for Ventilator	65-01-23	1
<u>Limit Switch Complete</u> (available only as a set)		1
Tangential Blower	QLD6/1200-A105-3020L-178nm	1
Tangential Blower	QLD6/2400-A119-3030L-129ci	1
Hour Counter	A1900.00005 A0 220V 50Hz	1
Socket IP 40	FUL 031. 2308	1
Cap IP 40	FEK 032. 2321	1
Fused Lamp	FEL 032. 1009 100 - 250~	1
Fuse Insert 6.3x32mm insert	034. 3427 10A/250V	1
Fuse Insert 5x20mm insert	034. 3118 1.25A/250V	1
Igniter	AD 3050/B	1
Device Clamp	Type AK 2/6	2
"ON" Push-button (Green)	1111 PF- B5 220V N/KV	1
"OFF" Push-button (Red)	1105 PN- B5 220V N/KR	1
Cable Connector with Strain Relief	T 3108. 001	1
Accessory Connector	31. 11. 000	1
Annex Housing	HB 16. AG- VS	1
Pin Insert	HSB 6/35. Sti. S	1
Yoke (Stirrup) Grip	GN 525- 117	1

Reflector Housing

Main Assy. No.: 65-02-

Upper Louvers	65-02-15	1
Rear Louvers	65-02-16	1
Ellipsoical Reflector	65-02-17/a	1
Spherical Reflector	65-02-18	1
Yoke (Stirrup) Grip	GN 525- 179	2

Zoom Housing

Main Assy. No.: 65-03-

Lens Set for Zoom - Objective f=20 -50cm with Anti-Reflective Elements 4 - Sections		
Bi-convex Lens Ø 235 f= 500	65-03-29	1
Bi-convex Lens Ø 185 f= 300	65-03-30	1
Plano-convex Lens Ø 235 f= 850	65-03-31	1
Plano-convex Lens Ø 235 f= 400	65-03-32	1
Yoke (Stirrup) Grip	GN 525- 179	2
Switch Knob	GN 719- 38- M·12	2
Hollow Milled Screw	GN 421- M 4- 15	5

Description	Order Code	Qty./Unit
Balance Point Adjustment	Main Assy. No.: 65-04-	
Extension (Three Star Grip)	65-04-12	2
Tenon	65-04-13	1
Clamping Piece	37-04-10	2
Rotating Four Blade Shutter	Main Assy. No.: 65-06-	
Clamp for Rotating Four Blade Shutter	65-07- komplett	1
Cross Grip Screws	GN 6335. 4- K 32-M6- 50	1
Hinge and Fixing Device	Main Assy. No.: 65-08-	
Hinge and Fixing Device	65-08- komplett	1
Stop Bolts	GN 617- 6 - A	2
Conversion Filter Holder	Main Assy. No.: 65-10-	
Conversion Filter for 3200 K	Typ 513, 300x 300	1
Diffuser with insert device	D 1530	1
Lamp Insert Housing	Main Assy. No.: 65-21-	
Retaining Springs for Lamp Adjustment	65-21-07	2
Overlay	Type 07454	1
Igniter Cables 1=2x0.5m	Type P 26 931 1x4 squared	2
Quick Locks Complete	500 - komplett	1
Hex Head Cap Screws M5x50	DIN 912	2
Hex Head Cap Screws M5x30	DIN 912	1
Mushroom Grip	GN 76- 25- M6 E	2