



Dichro 45SL

LED Colorhead/Instruction Manual

IMPORTANT SAFETY INSTRUCTIONS

When using your photographic equipment, basic safety precautions should always be followed, including the following:

1. Read and understand all instructions before using.
2. Close supervision is necessary when any appliance is used by or near children. Do not leave appliance unattended while in use.
3. Care must be taken as burns can occur from touching hot parts.
4. Do not operate appliance with a damaged cord or if the appliance has been dropped or damaged until it has been examined by a qualified service provider.
5. Position the cord so that it will not be tripped over, pulled, or contact hot surfaces.
6. If an extension cord is necessary, a cord with a current rating at least equal to that of the appliance should be used. Cords rated for less amperage than the appliance may overheat.
7. Always unplug appliance from electrical outlet before cleaning and servicing and when not in use. Never yank cord to pull plug from outlet. Grasp plug and pull to disconnect.
8. Let appliance cool completely before putting away. Loop cord loosely around appliance when storing.
9. To reduce the risk of electric shock, do not immerse this appliance in water or other liquids.
10. To avoid electric shock hazard, do not disassemble this appliance, but take it to a qualified service provider when service or repair work is required. Incorrect reassembly can cause electric shock when the appliance is used subsequently.
11. The use of an accessory attachment not recommended by the manufacturer may cause risk of fire, electric shock, or injury to persons.
12. Connect this appliance to a grounded outlet.

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DICHRO 45SL SPECIFICATIONS

Line Voltage:

Model #8278L 120V $\pm 5\%$, 60Hz

Electronics: Internally stabilized, solid state

Lamp: 3 Lamps, LED Array, Factory Replace Only
(5 Year Warranty on LED Lamps)

Type of Filtration: Dichroic Interference Filters

Filtration: Yellow, Magenta, Cyan

Auxiliary Filtration: None

Blower: None

Mixing Chambers: Standard 4x5 (Included)

Dimensions: Head – 17"W x 14"H x 13"D

Power Supply – 7"W x 4"H x 10"D

Weight: Head – 17.25 pounds

Power Supply – 5.8 pounds

Shipping Dimensions: Head – 20.5"W x 19"H x 16.5"D

Power Supply – 11"W x 6"H x 13"D

Shipping Weight: Head – 21.5 pounds

Power Supply – 6.5 pounds

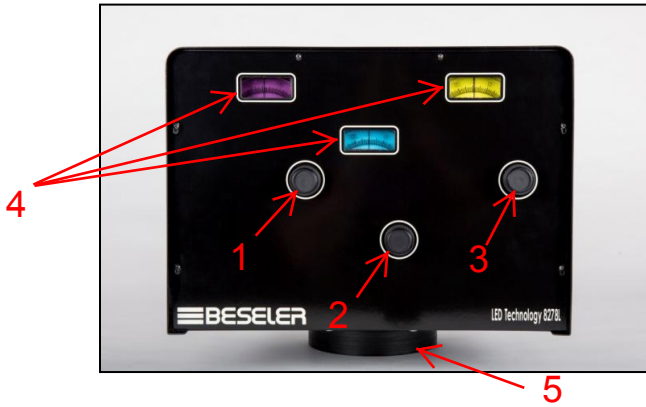
INTRODUCTION

Congratulations! With your purchase of the Beseler Dichro 45SL Colorhead, you have acquired a truly versatile colorhead. The Dichro 45SL is a solid state, dichroic colorhead incorporating a self-contained, stabilized power supply. Due to LED technology, a cooling system is not required. It represents the latest in electronics & LED technology applied to color printing.

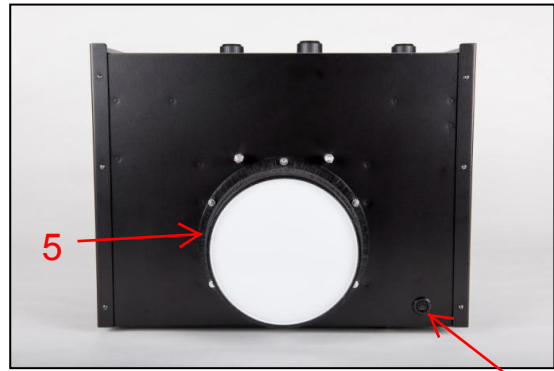
The colorhead is designed to work equally well with the Beseler 45V-XL, or 45M series enlargers and installation is simple. The Dichro 45SL offers diffusion color and black & white printing for formats ranging from sub-miniature to 4"x5" negatives.

If you desire to begin printing immediately with your Dichro 45SL, we suggest that you familiarize yourself with this manual as well as the colorhead and its controls (Figures 1 and 2 with descriptions) and then follow the directions in Section 1, Installation Instructions, and Section IV, How to Use the Dichro 45SL. The remainder of the manual contains additional valuable information which will increase your understanding of the Dichro 45SL.

Figure 1



- 1. Magenta Filtration Control**
Set Desired Amount of Magenta Filtration
- 2. Cyan Filtration Control**
Set Desired Amount of Cyan Filtration
- 3. Yellow Filtration Control**
Set Desired Amount of Yellow Filtration
- 4. Filtration Indicator Windows**
Displays Filtration Values of M, C & Y
- 5. Mounting Collar**
To Attach Colorhead to Beseler 45M Series Enlarger



- 6A & 6B. Sockets for 5 Pin Din Cable**

6A

- 7. Display Dimmer Switch**
Allows Dimmer Adjustment of Filtration Display From Off to Full Bright
- 8. Power Supply Selector – 3 Position**
Black & White (Up)
Off – Color Head Off (Middle)
Color (Down)
- 9. Power Cord**
3 Prong, Connects to Timer Power
- 10. 5 Pin Din Cable**
Connects 6A on head to 6B on Power Supply

See Page 4 for Layout



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1. INSTALLATION INSTRUCTIONS

The Dichro 45SL Colorhead is a head with a separate power supply and is shipped with a 4x5 diffusion mixing chamber and LED lamps. To mount the colorhead onto a Beseler 4x5 enlarger for diffusion printing, just follow these simple instructions:

A. If your enlarger is equipped with a Resistrol accessory, unplug it, as it cannot be used in conjunction with the colorhead.

B. Adjust the negative stage of the enlarger to the 4"x5" position on the negative size scale. Lock the negative stage lock knob on your enlarger.

NOTE: The illumination system of the colorhead requires that the upper bellows remain in the 4x5 position (fully collapsed) during diffusion printing with all negative sizes.

C. Remove the two screws holding the negative size scale in place and detach scale.

If your enlarger does not have a condenser lamphouse, pull forward the housing latches and go on to step E.

D. Unplug the condenser lamphouse power cord and remove the lamphouse/condenser assembly by pulling the support latches forward (see Fig. 2) and lifting the assembly clear of the enlarger. Store the assembly in a safe, dust free place.

E. Place the colorhead on the enlarger so that the colorhead mounting collar (Figure 1, Item 5) slides into the opening in the support stage (Figure 2).

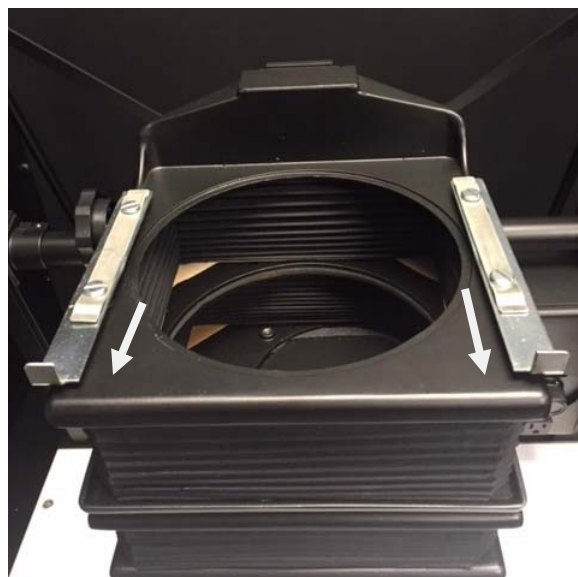
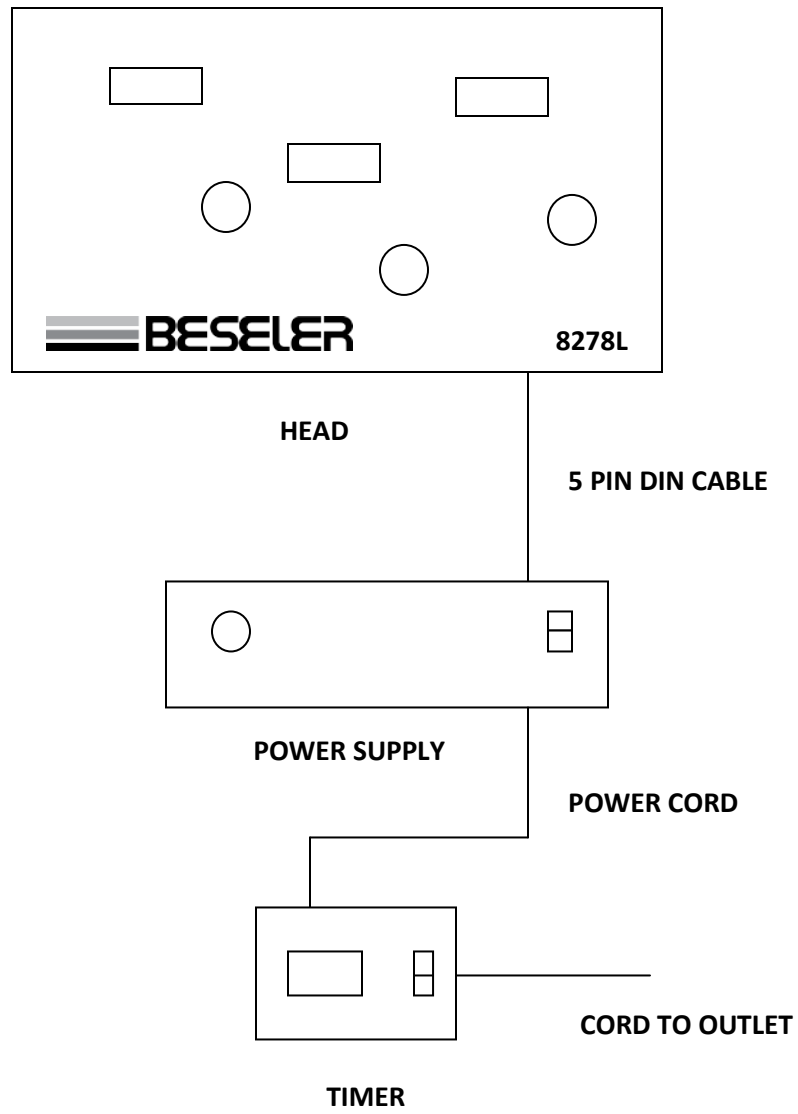


Figure 2 (Support Stage)

F. Once the colorhead is sitting squarely on the enlarger, lock it in place by pushing the latches back.

G. The lamp and the electronic power supply with the colorhead is stabilized. DO NOT use an external stabilized power supply. The Dichro 45SL has a 5 pin din cable that connects the power supply to the head. The power cord (Fig 1, item 9) is on the back of the power supply and is inserted in the "Enlarger" outlet on your timer. See Page 4 for typical AC connections. You are now ready to begin diffusion printing with your Dichro 45SL



2. CONTROLS AND COMPONENT DESCRIPTIONS

A. **POWER SWITCH** Three position switch (B&W, OFF, COLOR).

B. **FILTRATION CONTROLS** By turning the appropriate knob, any desired amount of yellow, magenta or cyan filtration may be introduced into the light path.

C. **MIXING CHAMBERS** A special 4x5 diffusion mixing chamber is standard with the Dichro 45SL.

D. **STABILIZED POWER SUPPLY** The voltage for the colorhead's lighting and electronics are internally stabilized over an AC line voltage range of $\pm 5\%$ from the normal. *A separate stabilized power supply is not required.*

E. **FILTRATION INDICATOR WINDOWS** The analogue dials are back-lighted when the main power switch is on. The dimmer switch on the power supply will adjust the brightness of the back light from full bright to off. The display lights are intended for adjusting the filters and should be off when exposing.

The 45SL is LED powered and low heat so therefore no cooling system is needed.

3. HOW TO USE THE DICHRO 45SL

The following information should help you to get started making color prints from negatives with your new Dichro 45SL colorhead.

A. Put your negative into the enlarger. Size, compose and focus the image as usual.

B. Dial in the recommended starting filter pack of 65-70Y + 65-70M. Set your lens to f/8 in the DIFFUSION mode and f/16 in the CONDENSER mode. Then turn the display off for best results.

C. Make a test strip for density, varying only the exposure time (not the lens aperture or the filter pack).

D. Evaluate the test strip for density.

1. If any section of the test strip shows exactly the right density, you're all done testing. Record the exposure time which produced it.

2. If one section of the test strip is too light and the adjoining section is too dark, an intermediate exposure time is required. For example: If the exposure time for the light section was 10 seconds and the exposure time for the dark section was 20 seconds, the proper exposure time will be somewhere in between 10 and 20 seconds. (If in doubt, you might want to make a second test strip using intermediate exposure times such as 12-14-16-18 seconds.

3. If all four sections are too light, open up the aperture of your enlarging lens by two full f/stops and repeat the test using the same exposure times (the original test strip was *under-exposed*.)

4. If all four sections are too dark, close down the aperture of your enlarging lens by two full f/stops and repeat the test using the same exposure times (the original test strip was *over-exposed*.)

5. Once the aperture setting and exposure time have been determined, the next step is to identify the **PREDOMINANT** color on the correctly exposed section of the test strip.

E. Identify the Predominant Color

If your test strip happens to be perfectly color-balanced, you are immediately ready to make a color print without making any adjustment to the filter pack. It's far more likely, however, that your test strip will have a predominant color cast which you will want to remove before making your full-size color print. You must first identify the predominant color cast and then refer to the **COLOR BALANCING TABLE** for directions on how to remove it.

The table shows what adjustments are necessary to color correct prints made from negatives or slides.

COLOR BALANCING TABLE

If first print made from a negative is too:	Or the first print made from a slide is too:	MAKE THIS CORRECTION BEFORE EXPOSING THE NEXT PRINT:
Yellow	Blue	Add Yellow or Subtract Cyan & Magenta
Magenta	Green	Add Magenta or Subtract Cyan & Yellow
Cyan	Red	Add Cyan or Subtract Yellow & Magenta
Blue	Yellow	Subtract Yellow or add Cyan & Magenta
Green	Magenta	Subtract Magenta or add Cyan & Yellow
Red	Cyan	Subtract Cyan or add Yellow & Magenta

Experience will show how much of an adjustment is necessary for prints requiring varying degrees of correction and what starting filter pack to use in making a first print. Note that there are two possibilities for each correction. Do not dial in the third filter value since the combination of filtration (Y+M+C) will result in neutral density causing loss of illumination and the need to increase exposure.

If you have just started color printing, it is a good idea to save those prints with which you are not satisfied. On the back, mark with the filtration and exposure time with which they were made and compare them to your final prints. This is the best method of learning the effects of changing filtration (and exposure) on your Dichro 45SL Colorhead.

4. BLACK & WHITE PRINTING

The Dichro 45SL may be used for black & white printing using its diffusion system simply by positioning the switch on the power supply to the "B&W" setting (up).

When printing with variable contrast papers, the colorhead can be used to control contrast, without the need of additional set of filters. The tables below show what filtration settings will approximate various paper grades on Agfa Multi-contrast & Ilford Multigrade papers.

Paper Grade	Multicontrast Filtration	Multigrade Filtration	Polycontrast Filtration
0	80Y	80Y	75Y
½	70Y	55Y	50Y
1	65Y	30Y	25Y
1 ½	50Y	15Y	10Y
2	30Y	0	10M
2 ½	15Y	25M	25M
3	20M	40M	40M
3 ½	30M	65M	55M
4	45M	100M	70M
4 ½	70M	150M	120M
5	130M	200M	170M

LIMITED ONE YEAR WARRANTY

(Applicable in U.S.A. - Outside U.S.A. See Local Distributor)

Charles Beseler Company, Stroudsburg, Pennsylvania warrants its products, to the original purchaser only, to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase.

This warranty does not apply to our products which show evidence of accidental damage, misuse or abuse by you. The warranty also does not apply to our products which are defective or damaged by tampering or attempted repair by an unauthorized Beseler agent.

Beseler exclusively limits the warranty to repair or replace (at Beseler's option) the defective part of its product. If you decide to send out product to our authorized repair outlet, you must insure the product and prepay all transaction expenses. Beseler will not be liable for damages caused in the course of shipping the product to you. You must allow at least six (6) weeks for correction of the defect.

ANY IMPLIED WARRANTIES OF FITNESS FOR USE, OR MERCHANTABILITY, THAT MAY BE CREATED BY OPERATION OF LAW ARE LIMITED TO THE ONE (1) YEAR WARRANTY PERIOD. Some states do not allow limitations on how long and implied warranty lasts, so the above limitation may not apply to you.

NO LIABILITY IS ASSUMED FOR EXPENSES OR DAMAGES RESULTING FROM INTERRUPTION IN OPERATION OF EQUIPMENT, DAMAGE TO FILM OR PAPER OR FOR INCIDENTAL, DIRECT OR CONSEQUENTIAL DAMAGES OF ANY NATURE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

In the event there is any defect in materials and workmanship of our product you may contact our Customer Service Department at Charles Beseler Company, 2018 West Main Street, PO Box 431, Stroudsburg, PA 18360. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. You may also have implied warranty service or performance, you may be able to go to a Small Claims Court, a State Court or a Federal District Court.

IMPORTANT:

THIS WARRANTY SHALL NOT BE VALID AND BESELER SHALL NOT BE BOUND BY THIS WARRANTY IF OUR PRODUCT IS NOT OPERATED IN ACCORDANCE WITH BESELER'S WRITTEN INSTRUCTIONS.

You must prove the date of purchase by producing a sales receipt indicating that you are the original purchaser.

IMPORTANT – KEEP THIS INFORMATION HANDY KEEP YOUR SALES RECEIPT!

SERVICE INFORMATION:

(Applicable in U.S.A. - Outside U.S.A. See Local Distributor)

Should you need service for your BESELER photographic equipment after the warranty has expired, please follow these steps:

CALL or EMAIL the customer service department for a return authorization #. If returned items are not assigned a return authorization #, they will be returned to sender upon receipt. Instructions for address and packaging will be provided with the return authorization process.

PREPAY FREIGHT CHARGE AND INSURE the package against loss or damage in transit.

ESTIMATES: We will gladly provide estimates upon request. There is a flat estimate of \$25.00 payable in advance. The estimate charge will be credited toward the cost of the repair. No work will be undertaken or billed until written approval of the estimate is received.

CHARGES: Your local Beseler dealer has a list of current price ranges to service Beseler photographic equipment. Any repair likely to exceed the maximum recommended service price will be estimated and held for your approval before work is begun.

PAYMENT: Your check for \$25.00 must accompany your request for an estimate, you may charge your VISA or MASTERCARD account. Repairs must be paid in full prior to return to the owner. Personal checks or VISA/MASTERCARD are accepted. (If you pay with VISA or MASTERCARD, please give the account number and expiration date.)

OBSELETE EQUIPMENT: Beseler reserves the right to refuse repairs to items that have been discontinued for five (5) years.

IN-WARRANTY SERVICE: There is no charge for service performed during the warranty period. PROOF OF PURCHASE is required for warranty service and must be enclosed with the return. Terms of warranty are explained above.

CHARLES BESELER COMPANY

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