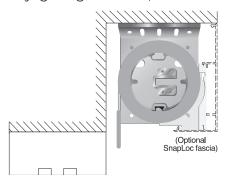
## The ElectroShade® Motorized Shade Systems

**ElectroShade®** was the first commercialized motorized shade system in which the motor resides within the roller tube (1976). ElectroShades are ideal for conference rooms and other VIP spaces, public spaces, high bay windows and atriums and where accessibility is a prob-lem. Utilizing Mecho Controls, ElectroShades can provide a uniform aesthetic appearance on the building facade, helping to protect the overall archi-tectural design. They are also ideal for green building design, using AAC SolarTrac™ for con-trolled solar shading, maximiz-ing daylighting and view, while

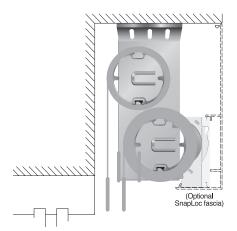


reducing energy consumption caused by excessive solar heatgain. ElectroShades are available in 120VAC or 220/230VAC 50/60 Hz, meet all worldwide standards and can be controlled by a variety of standard and optional control systems. ElectroShades have a Limited Lifetime Warranty on the hardware and shade cloth, and a 5-Year Limited Warranty on all motors and electronics\*.



#### **ElectroShades features:**

- Energy-Conserving Shade-Cloths. ElectroShades in a wide variety of sun screens and blackout shade cloths. Shade cloths provide visually transparent shading, with excellent glare control, energy savings and reduction in solar gain. Densities range from 0 to15% openness factor, translucent to highly transparent.
- DoubleShade® brackets allow for both sun screens and blackout shades on a single bracket in a compact space for faster, easier, more economical installation of two shades per window.
- Multi-Band Operation of up to 5 shade bands with a single motor for straight or faceted windows with up to 45° offset (22-1/2° each side) available.

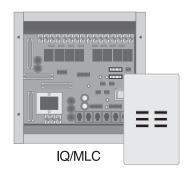


- SnapLoc® Fascia (optional).

  Conceals the entire shade assembly and may be used as a continuous one-piece architectural element to cover one or more shadebands without exposed hardware.
- SnapLoc® Spline for easy installation, removal and cleaning of the shadebands without tape or glue and without having to remove the tube or brackets.
- Full Line of Optional Accessories. Ceiling pockets, blackout sill and side channels and other optional accessories.

#### Controls:

Mecho offers controls designed to provide integrated solutions for Commercial, Lighting, A/V and Home Theatre. From sun activated, remote and wireless con-trol, local and group control, midwindow alignment and specifiable intermediate stop positions to the ulti-mate in facade control and energy management.





## **Broad Range of ElectroShade® Capability**

**ElectroShades** offer the most extensive range of solutions for your project requirements. ElectroShades can handle jobs large and small, angled windows, high bay windows and atriums where accessibility is a

- ElectroShade's <16°panble45° Center Supports can accommodate angled or faceted bay window applications.
- ElectroShades can integrate with the IQ/MLC™ Mid-Window Alignment System, remote control, sun activated sensors and timers. They can also be integrated with the AAC SolarTrac™ computerized solar tracking system for the ultimate in controlled solar shading systems.
- Shade heights of up to 50 feet (1524cm) high are possible with custom brackets.

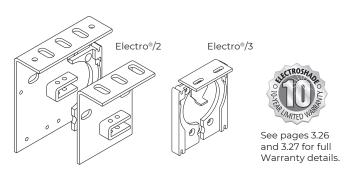
### Electro®/1 and Electro®/2

- Electro/1 and 2 are available in Standard, Extended DoubleShade® bracket models with a 50mm tubular motor and the new RTS motor for wireless switch control.
- Shades up to 180" wide by 220" high (457cm W x 559cm H) are possible with Electro/1 and 2 Extended brackets
- Electro/2 is designed to work with our optional SnapLoc® Fascia to entirely conceal the shade assembly in an exposed installation.
- Mecho® Extended manual shades and Electro/2 motorized shades can be mixed under one continuous compact fascia.

#### Electro®/3

Electro/3 is ideal for smaller conditions which can show up anywhere including conference rooms, offices, cafes and boutiques, hospitals and residences.

- Electro/3 is available in Standard, Pocket, Extended and DoubleShade models with a 40mm tubular motor. (RTS not available)
- Shades up to 90" wide by 220" high (229cm W x 559cm H) are possible with Electro/3 Extended brackets.
- Electro/3's smaller size allows it to fit in tighter spac-es, subject to maximum roll up diameters.
- Mecho® manual shades and Electro/3 motorized shades can be mixed under one continuous com-pact fascia.
- Electro/3 accepts blackout channels and most Mecho accessories.





Electro®/1



Electro®/2



Extended









Electro®/2 DoubleShade

Electro®/3

Electro®/3 Pocket

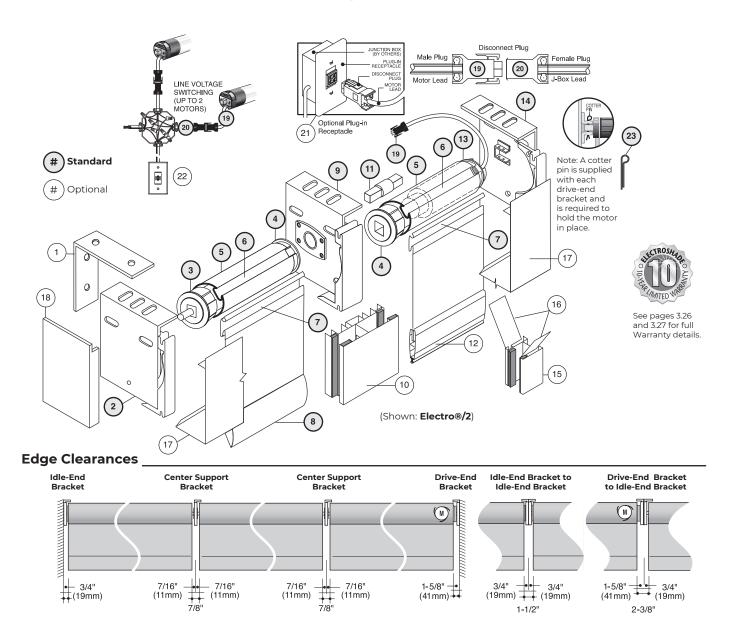
Electro®/3 Extended

Bracket	Max. Roll Up Diameter With Fascia	Max. Roll Up Diameter No Fascia	Bracket Dimensions Without Optional Fascia, Roll Up Diameter or Wall Mount Bracket
Electro®/1	n/a	4-1/4" (108mm)	2-7/8" (73mm) W x 3-1/2" (89 mm) H
Electro®/1 Extended	n/a	6-3/8" (162mm)	3" (76mm) W x 7" (178mm) H
Electro®/2	4-1/4" (108mm)	n/a	4" (114mm) W x 4-7/8" (124mm) H
Electro®/2 Extended	o®/2 Extended 5-1/8" (130mm) n/a		4-3/8" (111mm) W x 7-5/16" (186mm) H
Electro®/2 Extended Plus	6-3/8" (162mm)	n/a	5-3/16" (132mm) W x 7-5/16" (186mm) H
Electro®/3	2-3/4" (70mm) 2-3/4" (70mm) 3		3" (76mm) W x 3-3/4" (95mm) H
Electro®/3 Pocket	n/a	4" (102mm)	3" (76mm) W x 4-3/8" (111mm) H
Electro®/3 Extended	3-7/16" (87mm)	5" (127mm)	3" (76mm) W x 4-7/8" (124mm) H



# **ElectroShade® Parts, Components & Optional Accessories**

### Multiband ElectroShades® exploded view and edge clearances



Shown: Electro®/3 Edge Clearances. For Electro®/1, /2 and all other Edge Clearances, see Section 10 pages 10.05 – 10.10 and 10.12 – 10.15.

ElectroShades are available in Electro/1, 2 and Extended sizes with a 50mm motor and Electro/3, Pocket and Extended sizes with a 40mm motor.

- l. Wall-Mount Angle
- 2. Idle-End Bracket
- Idle-End Tube Plug
- 4. Tube Plug
- 5. SnapLoc® Tube (1-3/4", 2-1/2", 3-1/2" & 4-1/2" ø)
- 6. SnapLoc Spline Mounting
- SnapLoc Spline

- Hembar (standard cloth covered)
- 9. Center Support Bracket
- Room Darkening Center Channel (double with Polybond Light Seal)
- 11. Tube Connector ("dog bone")
- 12. Exposed Hemtube with Light Seal
- 13. Tubular Motor (A/C)
- 14. Drive-End Bracket
- Room Darkening Side Channel (single with Polybond Light Seal)
- 16. Room Darkening ShadeCloth Guides (pair)
- 17. SnapLoc Regular-Roll Fascia
- Fascia End Caps (Electro/2, Elec-tro/3 & Electro/3 Extended only)
- Motor Lead with Disconnect Plug (Power Plug)
- 20. J-Box Lead with Disconnect Plug
- 21. Optional Plug-in Receptacle
- 22. Low Voltage Control Systems
- Cotter Pin to hold motor in place

Optional Regular-Roll Fascia available for: Electro®/2, Electro®/2 Extended, Electro®/3 and Electro®/3 Extended brackets.

Optional Reverse-Roll Fascia available for: Electro®/3 and Electro®/3 Extended brackets. No Fascia Available: Electro®/1, Electro®/1 Extended and Electro®/3 Pocket brackets.

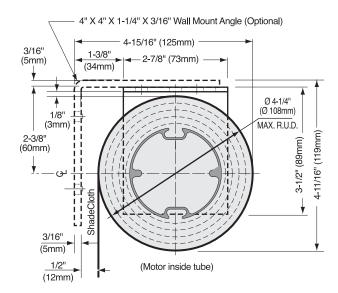
For Edge Clearances of specific brackets see Section 10 of this binder.



# Electro®/1 Bracket Details

### Electro®/1 Bracket

Maximum roll up diameter: 4-1/4" (108mm). Fascia not available.

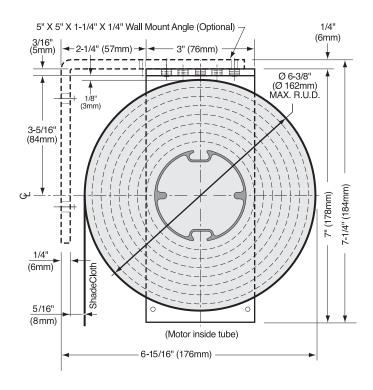




# Electro®/1 Extended Bracket Details

### Electro®/1 Extended Bracket

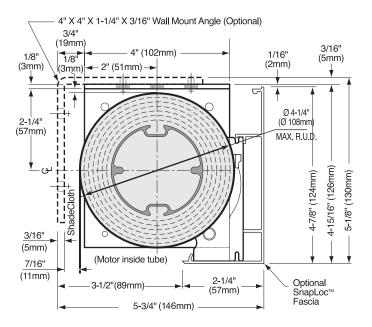
Maximum roll up diameter: 6-3/8" (162mm). Fascia not available.



# Electro®/2 Standard Bracket Details

## **Electro®/2 Standard Bracket**

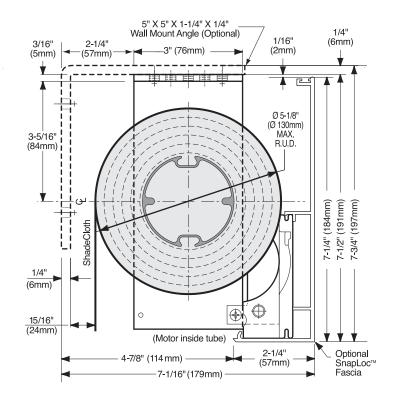
Maximum roll up diameter: 4-1/4" (108mm) with optional fascia.



# Electro®/2 Extended Bracket Details

## **Electro®/2 Extended Bracket**

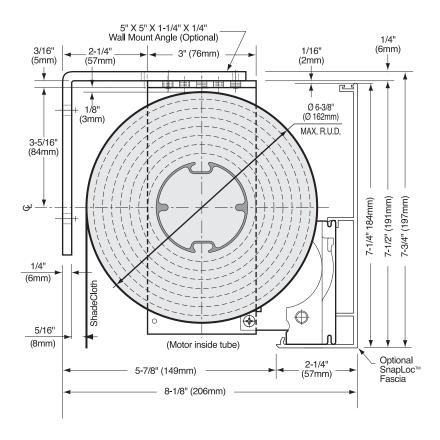
Maximum roll up diameter: 5-1/8" (130mm) with optional fascia.



# Electro®/2 Extended Plus Bracket Details

## Electro®/2 Extended Plus Bracket

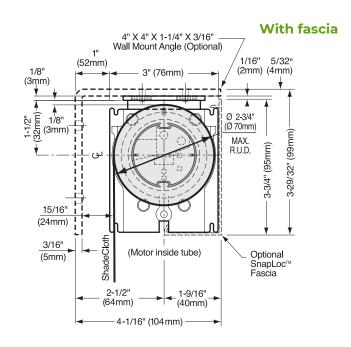
Maximum roll up diameter: 6-3/8" (162mm) with optional fascia.

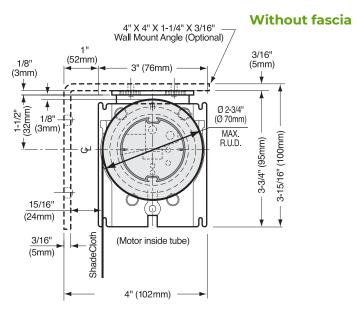


# Electro®/3 Bracket Details

### Electro®/3 Bracket

Maximum roll up diameter: 2-3/4" (70mm) with or without optional fascia.





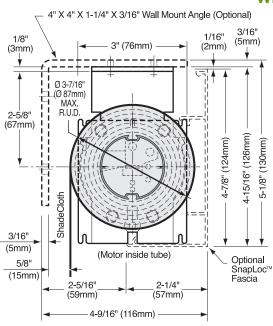
# Electro®/3 Extended Bracket Details

### Electro®/3 Extended Bracket

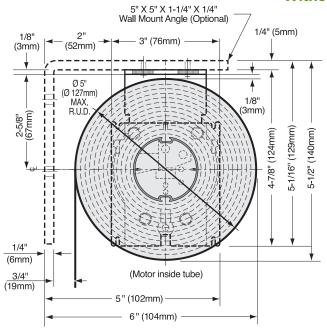
Maximum roll up diameter:

3-7/16" (87mm) with optional fascia or 5" (127mm) without.

### With fascia



#### Without fascia

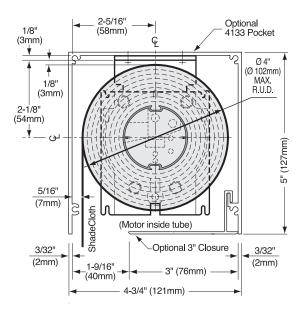




## Electro®/3 Pocket Extended Bracket Details

## Electro®/3 Pocket Ext. Bracket

Maximum roll up diameter: 4" (102mm). No fascia available.



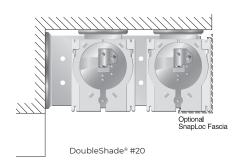
Electro®/3 and Electro®/3 Extended possess the same dimensions and roll up diameters as Mecho®/5 and Mecho®/5 Extended manual system hardware. Because of these common properties, all can be mixed and matched under one continuous fascia.

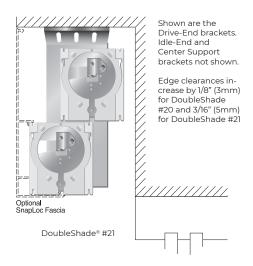
For the same reasons Electro<sup>®</sup>/3 Pocket Extended and Mecho<sup>®</sup>/5 Pocket Extended brackets can share the same pocket.



## Electro®/3 DoubleShade® Bracket #20 Details

#### Electro®/3 DoubleShade® Brackets





DoubleShades® have all the same features of the standard Mecho®/5 bracket, plus al-low both sun screen and room darkening on a single bracket.

#### **Compact Size**

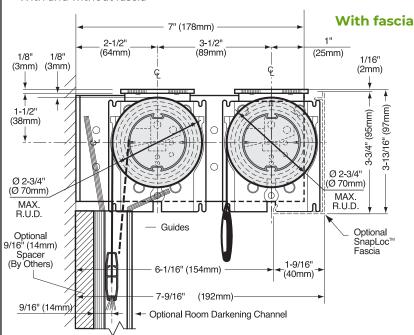
DoubleShade's compact size allows two shades to fit in a smaller room projection than two individually installed shades on the same window.

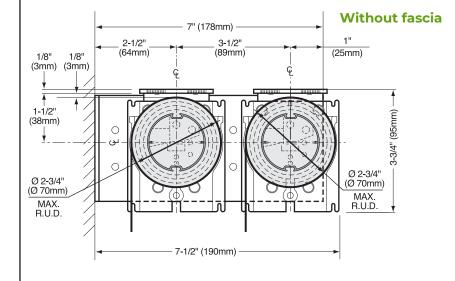
### **Ease of Installation**

DoubleShades provide faster, easier, more economical installation of two shades per window. The mounting brackets require less measuring and are pre-spaced to insure proper alignment of both shades in relation to each other.

#### Electro®/3 DoubleShade® Bracket #20

With and without fascia





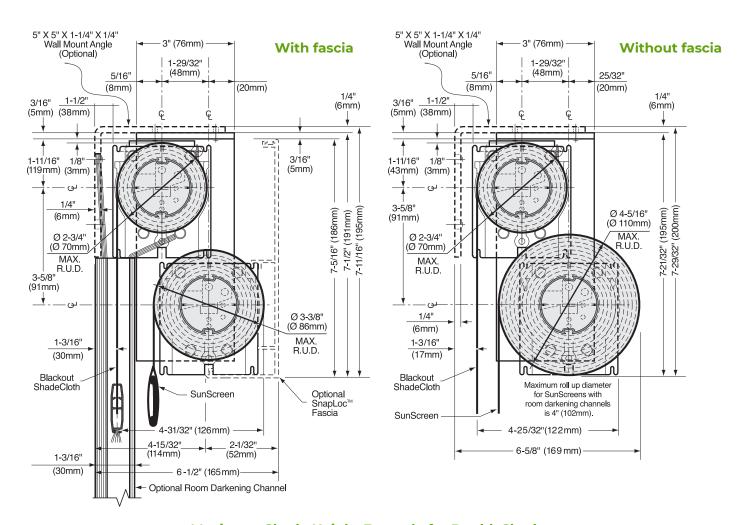
- DoubleShade Brackets require that both the solar and blackout operating brackets on a DoubleShade assembly have the same right-hand drive or left-hand drive orientation.
- Shade height, span and fabric determine bracket and tube selection.
   Please see the Maximum Shade Height Guide for DoubleShades on page
   14



## Electro®/3 DoubleShade® Bracket #21 Details

## Electro®/3 DoubleShade® Bracket #21

With and without fascia



### **Maximum Shade Height Example for DoubleShades**

(Confirm with Weights and Measures Book)

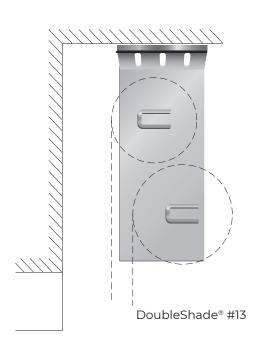
The same batten related issues about 1:4 ratio	No Battens	One (1) Batten	Two (2) Battens	
shades and railroaded shades over 84" apply to Double-Shades.	1-3/4" (45mm) SnapLoc® Tube	1-3/4" (45mm) SnapLoc® Tube	1-3/4" (45mm) SnapLoc® Tube	
DoubleShade #20**				
Blackout Rear Tube (without fascia)	227" (577cm)	187" (475cm)*	148" (376cm)	
ThermoVeil® Front Tube (with or without fascia)	109" (276cm)	89" (226cm)	70" (178cm)	
EuroVeil® Front Tube (with or without fascia)	132" (335cm)	109" (276cm)	85" (216cm)	
DoubleShade #21**				
Blackout Top Tube (without fascia)	227" (577cm)	187" (475cm)*	148" (376cm)	
ThermoVeil® Bottom Tube (with fascia)	209" (531cm)	185" (470cm)*	162" (411cm)	
(without fascia)	240" (610cm)*	240" (610cm)*	240" (610cm)*	
EuroVeil® Bottom Tube (with fascia)	240" (610cm)*	224" (569cm)*	196" (498cm)	
(without fascia)	240" (610cm)*	240" (610cm)*	240" (610cm)*	

 $<sup>^{</sup>st}$  Actual maximum heights may be greater, but not recommended, and may exceed the number of motor revolutions

<sup>\*\*</sup> DoubleShade #20: No end caps available. \*\*\* Shade #21: No channels available.



## Electro®/1 DoubleShade® Bracket #13 Details



Shown are the Drive-End brackets. Idle-End and Center Support brackets not shown.

Edge clearances increase by 3/16" (5mm) for DoubleShade #13

DoubleShades® have all the same features of the standard Mecho®/5 bracket, plus al-low both sun screen and room darkening on a single bracket.

#### **Compact Size**

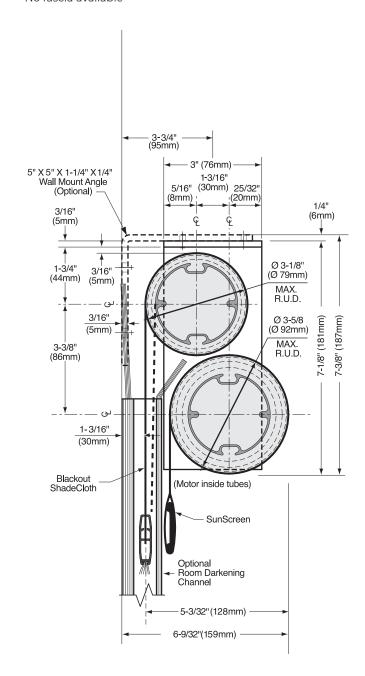
DoubleShade's compact size allows two shades to fit in a smaller room projection than two individually installed shades on the same window.

### **Ease of Installation**

DoubleShades provide faster, easier, more economical installation of two shades per window. The mounting brackets require less measuring and are pre-spaced to insure proper alignment of both shades in relation to each other.

#### Electro®/1 DoubleShade® Bracket #13

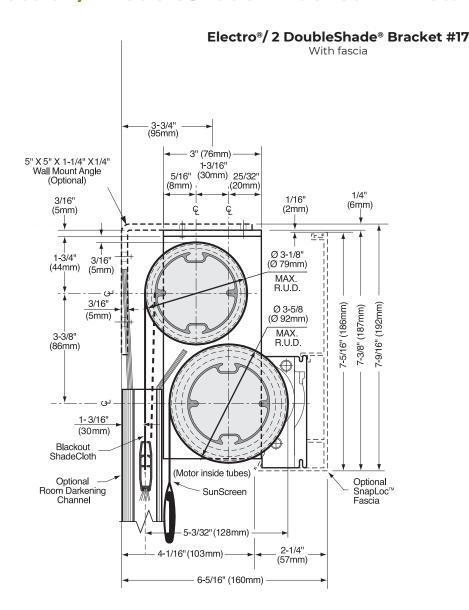
No fascia available

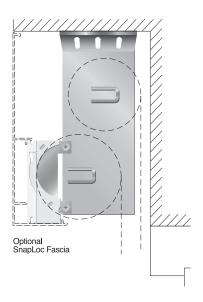


- DoubleShade Brackets require that both the solar and blackout operating brackets on a DoubleShade assembly have the same right-hand drive or left-hand drive orientation.
- For assistance on proper bracket and tube selection please contact your local representative or Mecho technical support.



## Electro® /2 DoubleShade® Bracket #17 Details





### **Maximum Shade Height Example for DoubleShades**

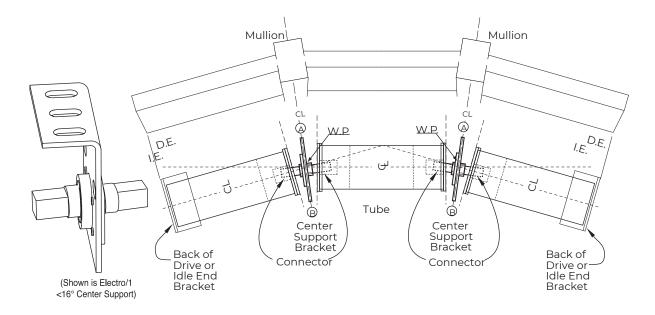
(Confirm with Weights and Measures Book)

The same batten related issues about 1:4 ratio			No Battens	One (1) Batten	Two (2) Battens
shades and railroaded shades over 84" apply to Double-Shades.		2-1/2" (63mm) SnapLoc® Tube	2-1/2" (63mm) SnapLoc® Tube	2-1/2" (63mm) SnapLoc® Tube	
DoubleSha	de® #13 and #17				
Blackout	Top Tube	(without fascia)	166" (422cm)	122" (310cm)*	77" (196cm)
ThermoVeil®	Bottom Tube	(#17 with fascia)	166" (422cm)	140" (355cm)	115" (292cm)
EuroVeil®	Bottom Tube	(#17 with fascia)	201" (510cm)	171" (434cm)	140" (355cm)
ThermoVeil®	Bottom Tube	(#13 with fascia)	166" (422cm)	140" (355cm)	115" (292cm)
EuroVeil <sup>®</sup>	Bottom Tube	(#13 with fascia)	201" (510cm)	171" (434cm)	140" (355cm)

\* No channels available.



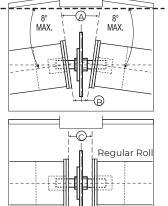
# ElectroShade® <16° Radius Center Support







Tube Connector for < 16° Radius Center Supports



NOTE: Edge clearances A & B for angled shades, are determined

- 1) Regular Roll or Reverse Roll,
- Rolled up diameter,
- 3) Up or down position of the shade, and
- 4) Angle of the window wall.

The edge clearances shown below for Electro®/1 & /2 are at an 8  $\,$ degree + 8 degree angle off the radius, with a 2-1/2" (64mm) tube and the shade in the full down position. Edge clearance for Flectro®/3

is based on a 1-3/4" tube. As the shade rises edge clearances will increase on a Regular Roll shade and decrease on a Reverse Roll shade. The amount of variance will depend on height of the shade and the angle.

Edge clearance C, for non-angled shades, is unaffected by the above factors.

The following < 16° Radius Center Support brackets use the < 16° Radius Tube Connector & a set of reinforced tube plugs.

< 16° Center Support	Center Support Edge Clearances			
Bracket model	(A)	(B)	(C)	Maximum Roll Up Diameter
Electro®/1	1-9/16" (39mm)	1-7/8" (48mm)	1-1/4" (32mm)	4-1/4" (108mm) no fascia available
Electro®/1 Extended	1-9/16" (39mm)	1-7/8" (48mm)	1-1/4" (32mm)	6-3/8" (162mm) no fascia available
Electro®/2	1-9/16" (39mm)	1-7/8" (48mm)	1-1/4" (32mm)	4-1/4" (108mm) with fascia
Electro®/2 Extended	1-9/16" (39mm)	1-7/8" (48mm)	1-1/4" (32mm)	6-3/8" (162mm) with fascia
Electro®/3	1-1/2" (38mm)	1-7/8" (48mm)	1-1/4" (32mm)	2-3/4" (70mm) with or without fascia
Electro®/3 Extended	1-1/2" (38mm) 1-1/2" (38mm)	1-7/8" (48mm) 1-7/8" (48mm)	1-1/4" (32mm) 1-1/4" (32mm)	3-7/16" (87mm) with fascia 5" (127mm) without fascia

! Reverse Rol

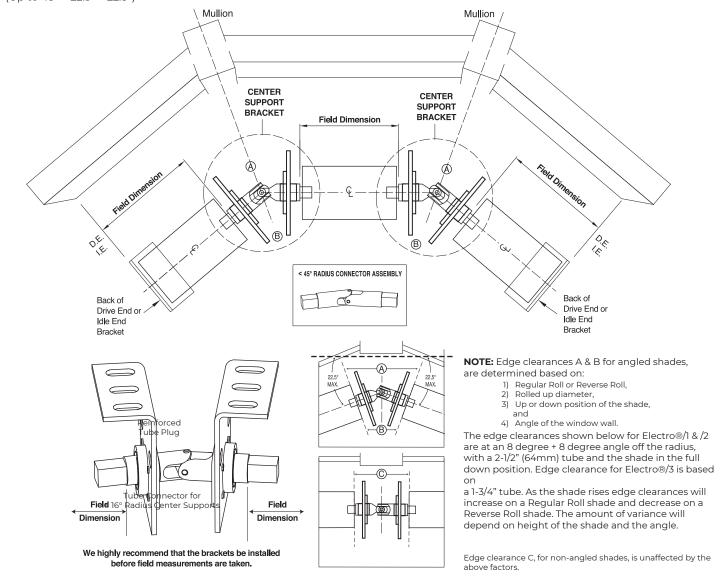
Not available for DoubleShade brackets. Call for shop drawings.



# ElectroShade® <45° Radius Center Support

### With or without SnapLoc® Fascia.

(Up to  $45^{\circ} = 22.5^{\circ} + 22.5^{\circ}$ )



 $The following < 45^{\circ}\ Radius\ Center\ Support\ brackets\ use\ the < 45^{\circ}\ Radius\ Universal\ Joint\ \&\ a\ pair\ of\ center\ support\ brackets.$ 

< 45° Center Support	Cent	er Support Edge Cleara		
Bracket model	(A)	(B)	(C)	Maximum Roll Up Diameter
Electro®/1	3-13/16" (97mm)	1-15/16" (49mm)	3-1/8" (80mm)	4-1/4" (108mm) no fascia available
Electro®/1 Extended	3-13/16" (97mm)	1-15/16" (49mm)	3-1/8" (80mm)	6-3/8" (162mm) no fascia available
Electro®/2	3-13/16" (97mm)	1-15/16" (49mm)	3-1/8" (80mm)	4-1/4" (108mm) with fascia
Electro®/2 Extended	3-13/16" (97mm)	1-15/16" (49mm)	3-1/8" (80mm)	6-3/8" (162mm) with fascia
Electro®/3	3-9/16" (91mm)	2-5/16" (59mm)	3-1/8" (80mm)	2-3/4" (70mm) with or without fascia
Electro®/3 Extended	3-9/16" (91mm) 3-9/16" (91mm)	2-5/16" (59mm) 2-5/16" (59mm)	3-1/8" (80mm) 3-1/8" (80mm)	3-7/16" (87mm) with fascia 5" (127mm) without fascia

Not available for DoubleShade brackets.

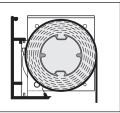


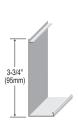
# Other ElectroShade® Components & Optional Accessories



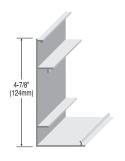
Shown: Snaploc™ Fascia for Electro®/2 and Electro®/3 Extended Bracket Mounted on Electro®/2 Bracket

Regular Roll

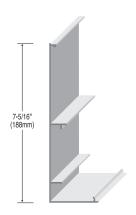




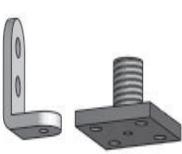
Fascia for Electro®/3 & Electro®/3 DoubleShade® #20 Brackets Regular Roll UFAA 4715 AL\_



Fascia for Electro®/2 & Electro®/3 Extended Brackets Regular Roll UFAA 4715 AL\_\_

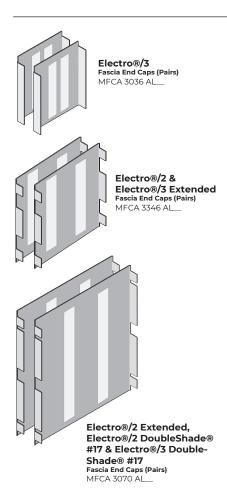


Fascia for Electro®/2 Extended, Electro®/2 DoubleShade® #17 & Electro®/3 DoubleShade® #21 Brackets Regular Roll
UFAA 7321 AL\_



**Guide Cables** are used when shades are sloped or the width to height ration (1:6) needs assistance in keeping the shade track-ing correctly.

Tension Idler Cable Kit w/ 20 ft. Cable EGCA 4112 AS NP





Single Wall-Mount Angle 4" x 4" x 1-1/4" (102 x 102 x 32 mm) For Electro®/1, Electro®/2 & Electro®/3 EWBX 4040 ST PL Plated

Double Wall-Mount Angle 4" x 4" x 3" (102 x 102 x 76 mm) For Electro®/1, Electro®/2 & Electro®/3 EWBX 4145 ST ZP Plated

Single Wall-Mount Angle 4" x 4" x 1-1/4" (102 x 102 x 32 mm) For Electro®/3, Electro®/3 Pocket & Electro®/3 Extended EWBX 4040 ST ZP Plated

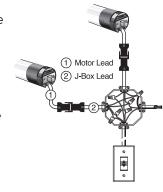
Single Wall-Mount Angle 5" x 5" x 1-1/4" (127 x 127 x 32 mm) For Electro®/1 Extended, Electro®/2 Extended, Electro®/1 DoubleShade® #13 & Electro®/2 DoubleShade® #17 UWBX 5050 ST PL



# Electro®/1, 2 & 3 Hardware Features and Specifications

The ElectroShade® system is designed, developed and fabricated to be a totally integrated unit and is furnished by the manufacturer, Mecho, with a warranty which provides that all components (motor, shade cloth, electrical controls and override cir-

cuits) have been designed and tested as a compatible integrated system. The basic control configuration is one or two Electro-Shades controlled from a single line voltage D.P.D.T. switch. For control of three or more motors from a single switch, or for mid window shade alignment at the touch of a button, a multi-motor controller



such as the MLC<sup>™</sup>, I·CON, IQ/MLC<sup>™</sup> or IMCS<sup>™</sup>/2 is required. (See Controls Section.)

### 1.0 ElectroShade Hardware

- **1.1 Mounting Brackets:** The drive assembly, idleend assembly, and center support systems are attached to an 1/8 in. (3mm) steel mounting bracket.
- **1.2 Shade Roller:** Extruded aluminum tube, 6063-T6 alloy, 1-3/4in. (44 mm), 2-1/2in. (63 mm), 3-1/2in. (90 mm) or 4-1/2in. (114 mm) OD (as required) with internal keyway to receive tubular motor. The tube is extruded with two fabricmounting channels designed to support the shade bands via the Snap-Loc® spline (see below).
- **1.3 SnapLoc® Mounting Spline:** Extruded vinyl with asymmetrical locking channels and embossed fabric guide for use with 1-3/4 in. (44 mm), 2-1/2 in. (63 mm), 3-1/2 in. (90 mm) or 4-1/2 in. (114 mm) OD tube. Spline has sufficient capacity to support the shade and additional hem weights without dis-engaging from the tube or without extra wraps of fabric on the tube. SnapLoc Spline shade band assembly may be installed or removed from the shade tube, or tube/motor assembly, without dis-assembling or removal from the mounting brack-ets.
- **1.4 End Brackets:** Consist of 1/8 in. (3 mm) thick sheet steel. Wall, jamb or ceiling mounted as required and permanently installed.

- **1.5 Center Support Brackets:** Supplied to allow multibanding. Ceiling or wall mounted. Center support brackets shall accept continuous lengths of fascia, which will span two or more ElectroShade bands up to maximum length of 15 feet (457cm) per section.
- **1.6 Hembar Weights:** Mill-finished aluminum bars in single lengths as appropriate for the size shade, concealed in a fabric hem pocket.
- **1.7 Exposed hembars** in painted and baked PPG finishes with key way for shades.
- **1.8 DualShade® System:** The patented DualShade system, by Mecho, for installing both a ThermoVeil® sun screen together with either a room darkening shade cloth or MirroFilm™attached to the same roller tube by means of the SnapLoc spline. The shade cloth and film shall be separated by 1/2 in. (13 mm) of insulating air space.
- 1.9 Optional SnapLoc® Fascia: SnapLoc® fascia shall be provided for standard and extended height brackets and center support brackets. Each bracket assembly permits the fascia to extend past the brackets, creating wall-to-wall fascia, with the brackets mounted inboard from the end of the fas-cia. SnapLoc fascia can be installed as a single unit over two or more shade band assemblies without exposed joints in lengths up to 15ft. (457cm). Snap-Loc fascia snaps on to the brackets without the use of glue, magnetic strips or any exposed fas-tening. The fascia is made of extruded aluminum (hardness/alloy 6063T5) with an average thickness of .062 in. (1.6mm). The fascia is finished in PPG Du-racon™ baked enamel in six standard colors plus clear aluminum.
- **1.10 DoubleShade® Mounting Brackets:** Amaster mounting bracket assembly for drive-end, idle-end and center supports to facilitate installation of two shades, front-to-back or top and bottom, with precise alignment and minimum installation labor. DoubleShade® brackets have all the same features of the standard ElectroShade bracket, plus allow both sun screen and blackout shades on a single bracket. DoubleShade's compact size allows two shades to fit in a smaller room projection than two individually installed shades on the same window.



# Electro®/1, 2 & 3 Hardware Features and Specifications

## 2.0 ElectroShade® Motor System

- **2.1 Limit Switches:** Internal limit switches are adjusted by two external push button, thumb screws or electronically set to allow exact setting of travel in both the raised and lowered positions. Micro switches provide circuit braking at the end of the run. The limit switch setting cannot be disturbed by the action of the roller tube.
- **2.1.1 Intelligent Motors with Busline Control** may have either manual, push-button or electronic limit switch adjustment.
- **2.2 Brake:** A solenoid activated disc brake mechanism stops and holds in any position. The brake automatically disengages when the motor is operating.
- **2.3 Motor:** An asynchronous (non-synchronous) motor with built-in reversible capacitor start-andrun is made to be operated with 95 to 125 VAC at 60hz. (207-253), single phase, temperature Class-A (maximum temperature rating of 140 C.), thermally protected, totally enclosed, maintenance free with locking disconnect plug assembly furnished with each operator.
- **2.4 Gear Box:** Three or more levels of satellite gears are provided for load distribution (planetary gears) and machined from close tolerance tempered steel or molded plastic. The speed varies according to model from 10 r.p.m. to 64 r.p.m.

- **2.5 Installation:** A single pin locks the drive end of the motor to the tube. A notched section of the tube turns the ring, which counts the turns and activates the limit switch. To interchange motors, the pin is pressed out of the tube and the motor slides out.
- **2.6 Sizes:** The motors are available in torques of 35-435 in. lbs. (lifting capacity), 10-64 r.p.m. speed to meet specified requirements and shall not exceed 60 mm in diameter as 115 VAC (230VAC) motors.
- **2.7 Connectivity:** Motors are available with either a one foot motor lead with a male Disconnect Plug (power plug). The Disconnect Plug end can be plugged into a compatible Plug-In Receptacle or a Junction Box lead with a female Disconnect Plug.
- **2.8 Warranty:** The manufacturer provides warranty that the motor is free of manufacturing defects for five (5) years from the date of installation. This warranty is void if the products have been improperly installed, wired or subjected to improper care. Warranty void if controlled by control systems not previously approved by Mecho.

### 3.0 Shade Cloth, Films and Laminates

(See Section 5 for specifications of ThermoVeil®, EuroVeil® and DualShades®.)

