



*Aromat Corporation - Lighting Division*

*AID007*

*Special Bulletin  
for  
Double-ended Metal Halide Lamp Fixtures*

**NAiS<sup>®</sup>**

The source ...

for Lighting Components and Product Design Expertise for the Luminaire Manufacturer

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### **Special Bulletin for Doubled-Ended Metal Halide Lamp Fixtures**

The introduction of the new ceramic arc tube T6 metal halide lamps offer some exciting double-ended fixture design alternatives for the OEM. However, the fixture design modifications must be properly addressed. The following benefits and precautions are given.

**1. MULTIPLE BALLAST OPTIONS:** The 70W double-ended lamps are dual-rated; they are approved for use on ballasts designed for either single ended or doubled ended specifications. The current 70W lamp and ballast alternatives are:

ANSI	Lamp type	Nominal Wattage	Ignition Pulse	Ballast Options
M85	Quartz, T6 w/R7s Base	75	4 to 6 KV	M85 Magnetic
M98	Quartz, Screw Base ED17	70	3 to 4 KV	-M98/M139/M143 Aromat Electronic [1] -M98/M143 Magnetic
M139	Ceramic, T6 w/G12 or doubled-ended with R7s Base	72	3 to 4 KV	-M98/M139/M143 Aromat Electronic or M139 magnetic -M98/M143 Magnetic on double-ended
M143	Ceramic, Screw Base ED17	72	3 to 4 KV	-M98/M139/M143 Aromat Electronic -M98/M143 Magnetic

[1] Consult lamp manufacturer for lamp compatibility

Therefore, the new M139 doubled ended (previously identified as “ceramic M85”) can be used on a magnetic M98/M143 ballast or on our NAiS DCPT™ electronic M98/M139/M143 ballast. The old M85 magnetic is not desired on the M139 lamps. Similarly, the M139 T6/G12 lamp can only be used on our M98/M139/M143 electronic ballast or an M98/M143 magnetic. Note the new ANSI M143 designation has been issued for lamps previously in the category of “ceramic M98”.

**2. UV ABSORPTION LENSES:** The “UV block” technology used on the Mastercolor lamps greatly reduces the UV transmission spectrum and it is now our understanding that UL is accepting double-ended fixtures without special UV lenses IF they are marked with the appropriate lamp replacement labeling. The fixture construction is cost reduced by eliminating the need for special UV absorption lens materials. Of course, now Philips must guarantee the UV characteristics are met, not the OEM or lens maker.

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**3. MICRO-SWITCH ELIMINATION:** UL currently requires all double ended-MH fixtures be provided with an interlock to eliminate any UV exposure during lamp replacements **and** to prevent any possibility of shock hazard. Remember that the quartz M85 lamp spec requires 4000 to 6000 V pulses to start. The “UV block” technology used on the Mastercolor Lamps appears to have been approved by UL so only one of the interlock requirements is eliminated. Therefore, for the interlock to be eliminated, the shock hazard must be evaluated by UL on a fixture by fixture basis. Typical lampholders used in double-ended lamp fixtures allow a double-ended lamp during replacement to be contacting one of the socket terminations while the other lamp contact can be touched by the installer’s finger. Internal Aromat testing has shown that the lamp could conduct if the power was still being applied to the ballast; as possible in a fixture with no interlock switch.

**4. PROTECTION:** The fixture lens will still be required at this time on all these T6 lamps fixtures as its primary function is to provide protection to the end user space for non-passive lamp failure modes. For the lens to be eliminated, the lamp must be a “P” type or protected lamp. At this time only PAR types and ED17”P” meet the protected lamp classification.

**5. CONCLUSIONS:**

a. Double-ended lamp fixtures:

- It is imperative that all double-ended lamp fixtures be designed and examined by UL for **both** the UV and shock hazard conditions, BEFORE the interlock switch is removed.
- Aromat does not agree that a “through-the-lamp” shock hazard test be allowed to grant acceptance! Ballast circuitry changes, different competitive performance factors, and improvements in lamp starting may totally change the “shock hazard characteristics” if lamps or ballasts are replaced in the field. Aromat has notified UL of their concerns in this matter. As shock hazard prevention is primarily a fixture design issue;

**Aromat does not approve, recommend, and will not warrant their ballasts in a “double-ended lamp fixture without an interlock” unless the fixture has been evaluated by UL and the shock hazard was found acceptable by meeting inaccessibility requirements!**

b. T6/G12 Lamps: It has been suggested that an easier option to possibly eliminate the shock hazard, is to use a T6/G12 base lamp as those lampholder contacts are typically deeply recessed and therefore, may more easily meet UL's inaccessibility standards.

c. In general, the proper fixture design per the recommendations above coupled with the specification of the double-ended or T6/G12 Mastercolor™ lamps operated by the NAIS "DCP" electronic MH ballast will achieve significant fixture cost reduction, ease of assembly, superior system performance, and warranted lamp performance with no sacrifice in product safety.

### **Revision Summary:**

Revision	Modifications
Rev A	Format Change
Rev B	<p>In the lamp -ballast option section:</p> <ul style="list-style-type: none"> <li>• Added magnetic M143 ballast to M139 &amp; M143 lamps</li> <li>• Removed M85 magnetic from M139 recommendation</li> <li>• Eliminate M98 magnetic recommendation from M139T6 lamps</li> </ul> <p>Conclusions:</p> <ul style="list-style-type: none"> <li>• Modified "No Warranty" statement to include no approval or recommendation.</li> </ul> <p>Added Revision Summary</p>

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