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Section 1

MILTEC PRECISION MADE BULBS

- Equals or exceeds original equipment manufacturer specifications
- Available in H, H+, D and V spectral output types
- Available for all 6" and 10" microwave lamp models
- 300w/in. 500w/in. and 600w/in.
- Non-prorated warranty
- All bulbs are shipped in a kit which includes a bulb, lint-free gloves and an alcohol wipe



<i>6 inch bulbs</i>		<i>300 watts per inch</i>			<i>500 watts per inch</i>		
Bulb Type	Diameter	Miltec P/N	OEM P/N	Old P/N	Miltec P/N	OEM P/N	Old P/N
H	9 mm	380-00201	558432	205602	380-00301	558412	525632
H+	9 mm	380-00202	558431	205601			
D	9 mm	380-00203	558434	040124			
V	9 mm	380-00204	558437	040126			
V	11 mm				380-00304	558417	525637
D	11 mm				380-00305	558394	525624



<i>10 inch bulbs</i>		<i>300 watts per inch</i>			<i>600 watts per inch</i>		
Bulb Type	Diameter	Miltec P/N	OEM P/N	Old P/N	Miltec P/N	OEM P/N	Old P/N
H	9 mm	380-00001	558492	274432			
H+	9 mm	380-00002	558491	274431			
D	9 mm	380-00003	558494	274434			
V	9 mm	380-00004	558497	274437			
D	11 mm	380-00101	558454	511004	380-00101	558454	511004
H	13 mm				380-00102	558472	213462
H+	13 mm				380-00103	558471	213461
D	13 mm				380-00104	558474	213464
V	13 mm				380-00105	558477	213467

<i>10 inch bulbs</i>		<i>Nordson MAC 10</i>			<i>600 watts per inch</i>		
Bulb Type	Diameter				Miltec P/N	OEM P/N	
D	13 mm				503-00104	775043-D	
V	13 mm				503-00105		
H+	13 mm				503-00103		

REFLECTORS

Miltec reflector kits include our premium MILTEC M or MD series main reflector, 2 end reflectors, new gasket material, mounting hardware, and cleaning pad. Reflectors are available for both 10" and 6" microwave powered irradiators. The M Series Enhanced Cooling reflector kit maintains your UV bulb at lower temperatures, which helps prolong your bulb life and reduces heat at the substrate level. The MD Series dichroic reflector significantly reduces IR radiation, lowering temperature on your product.

Miltec takes great care in packaging all of our products with rugged boxes packed with foam to prevent shipping damage and to make it easy for you to stack on your stock shelves.

Milcure M series

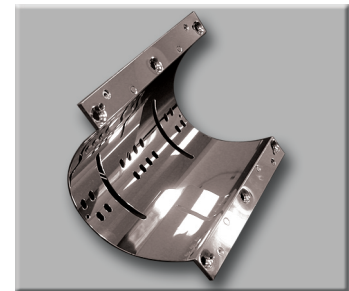
Standard 10" Reflector Kits

Irradiator Model #	M series enhanced cooling reflector kit			Gasket Kit
	Miltec P/N	OEM P/N		Miltec P/N
I223	380-00402	017793	291321	380-80251
I250	380-00412	256001	276091	380-80252
I600E	380-00422	017798	276094	380-80251
I600M	380-00432	256003	276093	380-80252



Standard 6" Reflector Kits

Irradiator Model #	M series enhanced cooling reflector kit			Gasket Kit
	Miltec P/N	OEM P/N		Miltec P/N
I300E	380-00601	042306		380-80253
I300M	380-00611	292161		380-80253
I6	380-00622	NA		380-80254

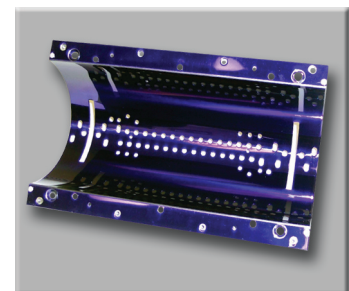


Milcure MD series

Miltec dichroic reflectors are made from high grade materials, producing the best possible UV reflectance while absorbing the maximum amount of infrared energy that is possible with today's available material coating technology.

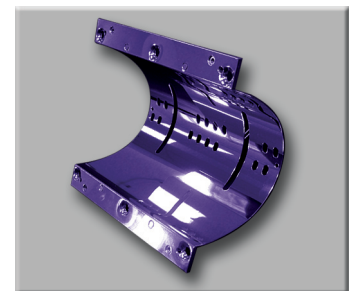
Dichroic 10" Reflector Kits

Irradiator Model #	Dichroic w/ standard end plates		Dichroic w/ dichroic end plates	
	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
I223	380-00405	527355	380-00406	527356
I250	380-00415	527315	380-00416	527316
I600E	380-00425	527353	380-00426	527354
I600M	380-00435	527313	380-00436	527314

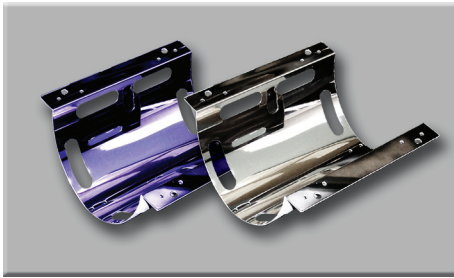


Dichroic 6" Reflector Kits

Irradiator Model #	Dichroic w/ standard end plates		Dichroic w/ dichroic end plates	
	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
I300E	380-00605	527351	380-00606	527352
I300M	380-00615	527311	380-00616	527312
I6	380-00625	514403	380-00626	514404



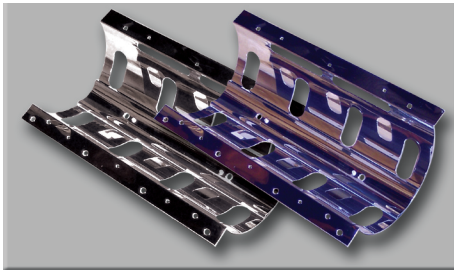
Section 1



Milcure F6 series

Includes backstrip Without backstrip

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-00677	261325	380-00675	261322

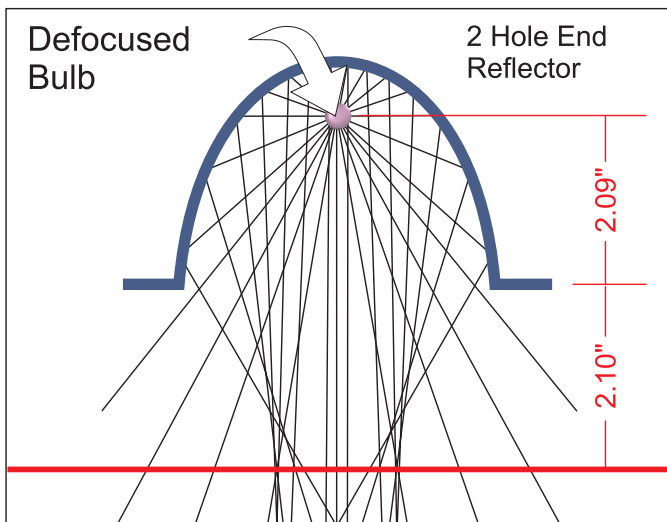
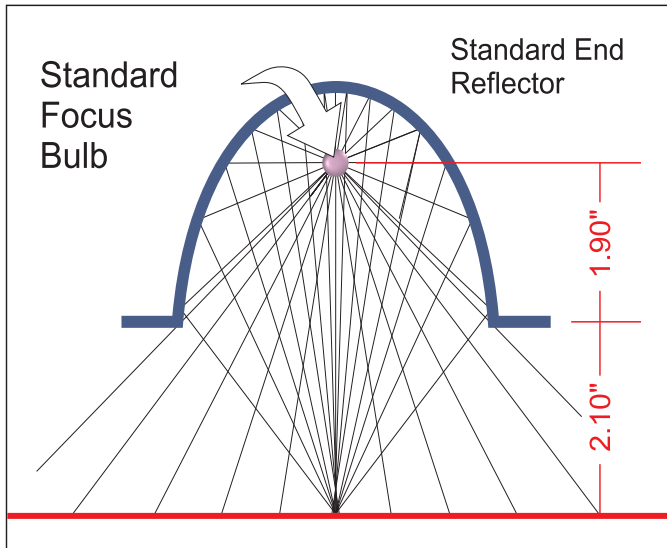


Milcure F10T and F10T2 series

Includes backstrip Without backstrip Dichroic

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-00650	278105 ▲	380-00660	278101 ▲	380-00655	278108
380-00651	513672	380-00661	256005	380-00656	5294471
380-00652	511952 ▲	380-00653	511953 ▲	380-00657	527651
				380-00658	NA

▲ = Vented



End plates

Miltec P/N	OEM P/N
381-80204	NA
F10T standard	

Miltec P/N	OEM P/N
381-80205	NA
F10T2 standard	

Miltec P/N	OEM P/N
380-00701	079241
1 hole standard	

Miltec P/N	OEM P/N
380-00705	251897
1 hole dichroic	

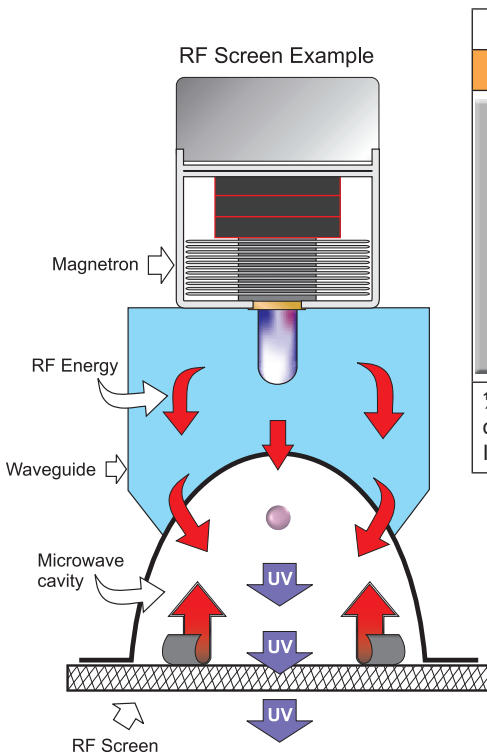
Miltec P/N	OEM P/N
380-00703	554253
2 hole standard	

RF SCREENS

Milcure XF series

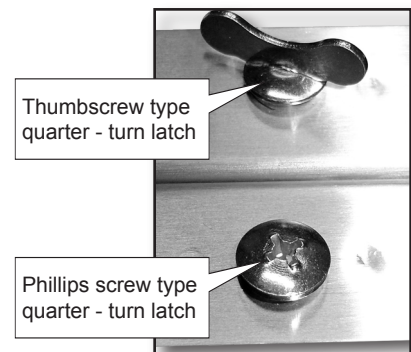
Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-00801	019711	530-00801	NA	380-00851	019712
10" RF screen used on Fusion models: i223, I250 and I600 series irradiators.		10" RF screen used on Nordson models: MAC 10 series irradiators.		6" RF screen used on Fusion models: I300 series irradiators.	

Miltec P/N	OEM P/N	Patented 1/4 Turn RF Screen		1/4 Turn Mating Reflector	
380-00861	019714	Miltec P/N	380-00807	Miltec P/N	380-00442
6" RF screen used on Fusion models: I6 series irradiators.		1/4 turn 10" RF screen used on Fusion models: i223, I250 and I600 series irradiators.		10" Milcure M reflector designed to accept both conventional and patented RF screens.	



Patented 1/4 Turn RF Screen	
Miltec P/N	380-00808
1/4 turn, thumbscrew type 10" RF screen used on Fusion models: I223, I250 and I600 series irradiators.	

Two types of captive 1/4 turn screws available. Both types allow you to remove the RF screen in seconds.



RF Screen absorbers are thin, lightweight absorbers which are optimized to provide a high degree of absorption for specific frequencies in the range of 1.0 to 18 Ghz.

Why don't microwaves leak through the screen? Since the holes in the mesh screen are much smaller than the wavelength of the 2450 Mhz microwaves (about 5 inches or 12.5cm), it is seen as opaque to microwaves and essentially all of the energy is reflected back into the UV bulb cavity, while at the same time allowing UV to freely pass through the mesh screen. See illustration at left.

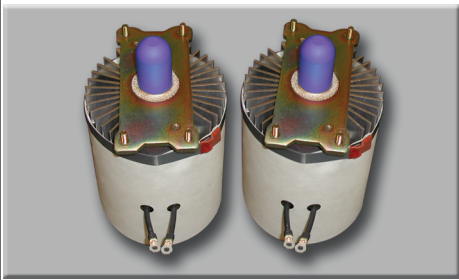
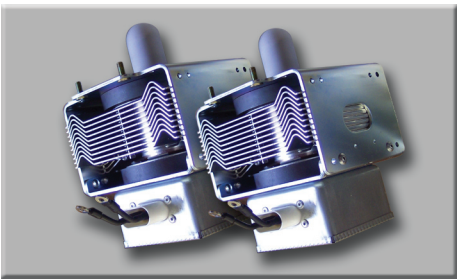
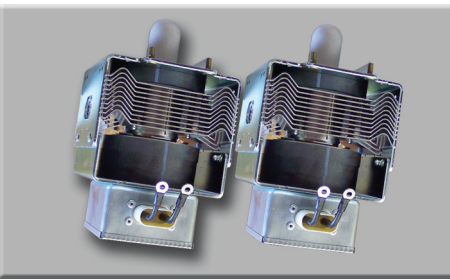
Section 1

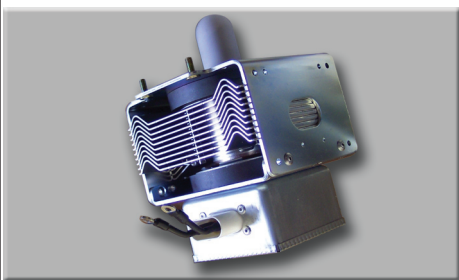
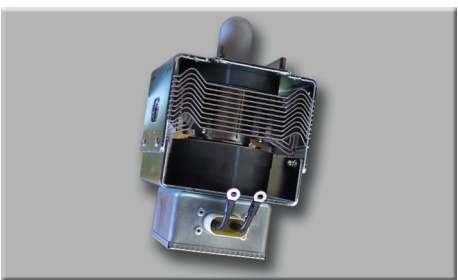
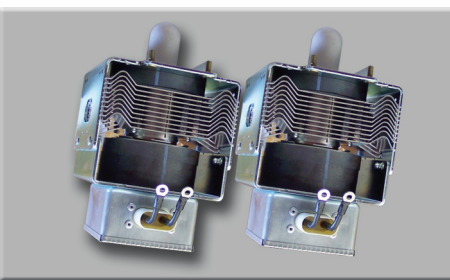
Magnetrons

The heart of a microwave irradiator is the magnetron. A magnetron converts electrical energy to microwave radiation. To do this, it uses low-voltage alternating current and high-voltage direct current. A transformer changes the incoming voltage to the required levels and a capacitor, in combination with a diode, filters out the high voltage and converts it to direct current.

Inside the magnetron, electrons are emitted from a central terminal called a cathode. A positively charged anode surrounding the cathode attracts the electrons. Instead of traveling in a straight line, permanent magnets force the electrons to take a circular path. As they pass by resonating cavities, they generate a continuous pulsating magnetic field, or electromagnetic radiation.

The magnetron tube is a diode-type electron tube that is used to produce the required 2450 MHz of microwave energy. It is classed as a diode because it has no grid, as does an ordinary electron tube. A magnetic field imposed on the space between the anode (plate) and the cathode serves as the grid. While the outer configurations of different type magnetrons will vary by make and model, the basic internal structures are the same. These are the anode, the filament/cathode, the antenna and the magnets.

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-00901	012071	380-00902	256041	380-00903	234323
					
Magnetron kit for Fusion model I223		Magnetron kit for Fusion model I250		Magnetron kit for Fusion model I600	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-00951	078612	380-00952	078613	503-00903	NA
					
Magnetron kit for Fusion model I300		Magnetron kit for Fusion model I6		Magnetron kit for Nordson MAC 10	

What's Inside?

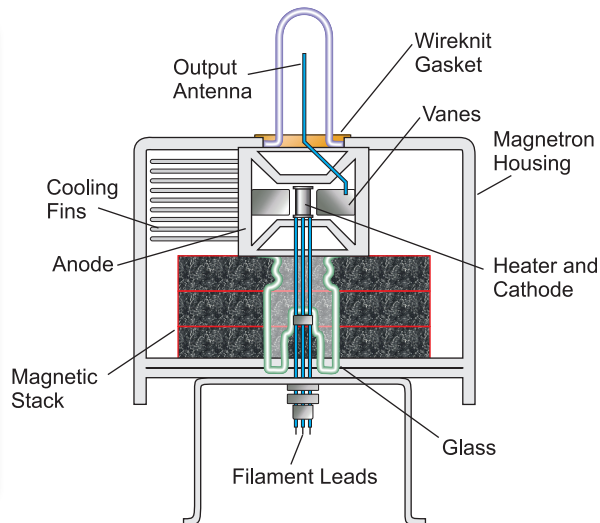
The **ANODE** (or plate) is a hollow cylinder of iron from which an even number of anode vanes extend inward. The open trapezoidal shaped areas between each of the vanes are resonant cavities, which serve as tuned circuits, and determine the output frequency of the tube. The anode operates in such a way that alternate segments must be connected, or strapped, so that each segment is opposite in polarity to the segment on either side. In effect, the cavities are connected in parallel with regard to the output. This will become easier to understand as the description of operation is considered.

The **FILAMENT** is located in the center of the magnetron and is supported by the large and rigid filament leads which are carefully sealed into the tube and shielded.

The **ANTENNA**, a probe or loop connected to the anode and extending into one of the tuned cavities, is coupled to the waveguide into which it transmits the RF energy.

The **MAGNETIC FIELD** is provided by strong permanent magnets, which are mounted around the magnetron so that the magnetic field is parallel with the axis of the cathode.

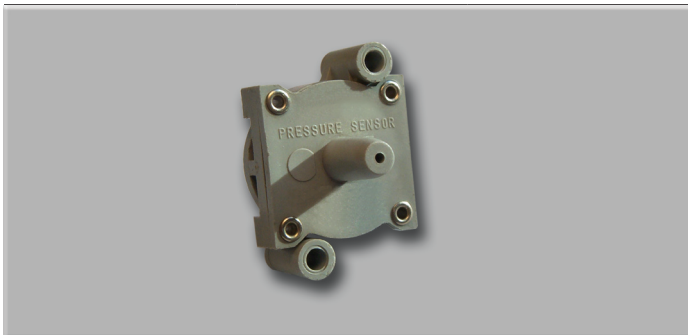
Basic Magnetron Construction



Ignitor Bulbs

For 10" Systems - includes mounting clip and hardware			For 6" systems - includes mounting clip and hardware		
Model Type	Miltec P/N	OEM P/N	Model Type	Miltec P/N	OEM P/N
I223	380-01100	017861	I300	380-11051	017866
I250	380-01101	017861	I6	380-11051	017866
I600	380-01101	017861			
Nordson MAC 10	503-01101				

Air Pressure Switches



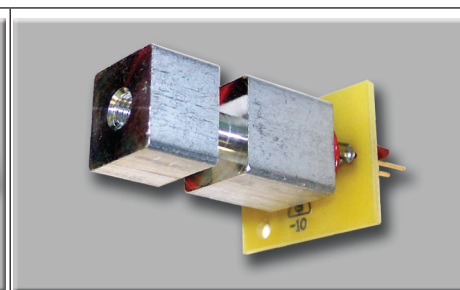
Model Type	Miltec P/N	OEM P/N
I223 - I250	380-01001	026072
I600	380-01002	026079
I300	380-01051	292551
I6	380-01052	233982

Magnehelic Pressure Tester



Miltec P/N	055-00200
<p>The magnehelic air pressure tester is an invaluable test instrument for determining adequate air flow to your irradiator.</p>	

Electrical Accessories



Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-01201	007971	380-01202	255062	380-50420	RF-1
Photocell for I223 - I300		Photocell for I250 - I600		RF Detector used on all models	

Section 1

Power Supply Components

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50035	222741	380-50037	23411	380-50038	23271	380-50039	23292
Relay, P150, P155, P160		Relay, P150, P155, P160		Relay, P150,155,160		Relay retainer clip	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50036	222741	380-50015	38141	380-50016	327591	380-50017	327593
Relay, solid state, P600		Switch, P150, P155, P160		Switch, lamp off, P300		Switch, lamp on, P300	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50018	327592	380-50050	292241	380-50051	37914	380-50025	28221
Switch, standby, P300		Switch, On/Off, VPS		Switch, On/Off, P600		Diode, P150	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-02001	291941	380-50700	213641	380-50002	026903	380-50010	31471
Diode, dual SCR, VPS		Diode, P600		Resistor, 1 ohm		Resistor, 1 Megohm, 5W	

Power Supply Components

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50040	26904	380-50045	257261	380-50200	29233	380-50001	029225
Resistor Assembly, 1 ohm		Suppression Coil, i250		Power supply fan, P150		Power supply fan, P600	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-01805	NA	380-50005	291711	380-90001	NA	380-90003	NA
Fan Guard, P600		Power supply fan, VPS		Control card repair, P150		Control card repair, P600	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50009	254101	380-50111	NA
HV connector nut		Fuse holder, F600, 3A	

Miltec's repair center is staffed by expert technicians and all work is guaranteed. We offer fast turnaround and reasonable prices. Whether you have microwave powered UV or an arc lamp UV system, Miltec can help you get your equipment back to optimum operating performance

Fuses

Fuse Type	Miltec P/N	OEM P/N	Fuse Type	Miltec P/N	OEM P/N
F600, 3A	380-50112	042284	FNQ 5A	380-50118	025083
FLQ 10A	380-50113	25082	FNQ 7A	380-50119	033716
FNQ 20A	380-50114	33714	FNQ 8A	380-50120	025088
FNM 3A	380-50115	25084	FNQ 12A	380-50121	33712
FNM 4A	380-50116	096931	FNQ 15A	380-50122	25086
FNQ 2A	380-50117	033711	FNQ 25A	380-50123	33715
			4A, 250V	380-50124	24911



Section 1

Cable Sets and Connectors

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-60001	295223	380-60002	295243	380-60003	38111	380-60004	328494
I250/P150 w/blower - 8M		I250/P150 wo/blower - 8M		I223/P150 w/blower - 8M		I600/P600 - 8M	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-60005	329194	380-60006	329284	380-60050	091211	380-51300	512691
RF-1/P150 - 8M		RF-1/P600 - 8M		I223/P160 w/blower - 8M		I600 Harness	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50070	43043	380-50071	37933	380-50072	37942	380-50075	215741
Connector Kit, P150, P600		Connector, RF cable		Connector, strain relief		Connector, P108, P600	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
380-50080	91241	380-50085	25811	380-61101	37924	380-61103	37926
Connector, P105, P600		Housing, strain relief		Chassis J104, P150		Chassis J105, P150	

Quartz Plates

Quartz plates are used to isolate the lamp cooling air from the substrate. The quartz is highly transparent in the UV range to minimize UV losses. The standard sizes are listed below. All edges are ground smooth and flame polished.

Custom sizes are available, call Miltec for pricing and availability.

Standard Quartz

Size in inches	Miltec P/N	OEM P/N
6 x 6 x .09	380-01301	300291
6 x 10 x .09	380-01302	300292
6 x 12 x .09	380-01303	300293
6 x 6 x .06	380-01304	300302
6 x 10 x .06	380-01305	300303
6 x 12 x .06	380-01306	300304



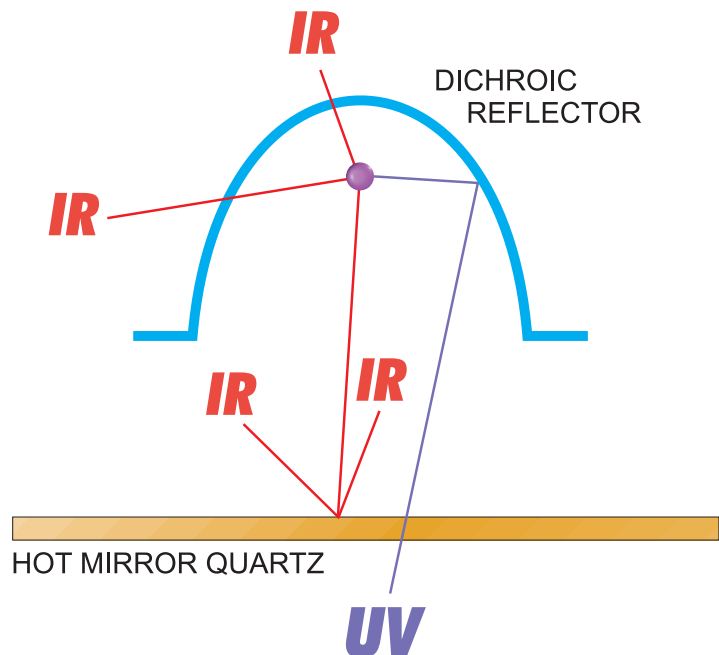
Hot Mirror Quartz

Size in inches	Miltec P/N	OEM P/N
6 x 6 x .09	380-01401	526451
6 x 10 x .09	380-01402	526452
6 x 12 x .09	380-01403	526453
6 x 6 x .06	380-01404	527101
6 x 10 x .06	380-01405	527102
6 x 12 x .06	380-01406	527103

Hot mirrors are dichroic coated quartz plates, which are used to reduce the heat load on to the substrate by blocking a significant portion of the infrared energy produced by the UV lamp. Additionally, the hot mirror will isolate the lamp air from the substrate. The hot mirrors are constructed of high grade quartz, which is highly transparent in the UV range to minimize UV losses. The standard sizes are listed below. All edges are ground smooth and flame polished.

If your process requires the product being cured to maintain a low surface temperature, an excellent way to accomplish this is to use a heat management system which employs both Dichroic reflector as well as Hot Mirror Quartz. As the illustration at the right shows, the Dichroic reflector absorbs IR energy while the Hot Mirror Quartz reflects IR back away from the substrate.

This method is widely used in many applications in which the substrate is heat sensitive. Since the Hot Mirror Quartz has a very high transmittance to UV, multiple coating layers can be added to enhance the IR blocking performance, thus achieving a greater barrier between the substrate and the IR energy.



Section 1

Filter Material

Milcure Filters

Filter Dimensions (l x w in inches)(mm)	Qty (Set)	Compatible with OEM blower model (or "FW" type irradiator model)	Miltec P/N	OEM P/N
4.75 x 22.50 (120.65 x 571.5)	20	K523 (used on I223B) K533 (used on I233B)	380-01501	235903
12 x 17 (304.8 x 431.8)	20	K250 (used on I250B)	380-01502	235908
10.50 x 12.50 (266.7 x 317.5)	20	I223F/W	380-01503	235904
10.50 x 15.50 (266.7 x 393.7)	20	I250F/W	380-01504	235905
3.50 x 14.50 (88.9 x 368.3)	20	K300 (used on I300B and MB)	380-01506	066398
6.5 x 6.5 (165.1 x 165.1)	20	K6 (used on I6B) or P150	380-01507	066394
19 x 42 (482.6 x 1066.8)	5	PBA-1/60 thru PBA-12/60 PBA-1/50 thru PBA-11/50	380-01511	066399
24 x 56 (609.6 x 1422.4)	5	PBA-13/60 thru PBA-19/60 PBA-12/50 thru PBA-15/50	380-01512	235901
24 x 77 (609.6 x 1955.8)	5	PBA-21/60,22/60,25/60,26/60 PBA-16/50 thru PBA-29/50	380-01513	290631
30 x 94 (762 x 2387.6)	5	PBA-28/60 thru PBA-32/60	380-01514	290632
40 x 94 (1016 x 2387.6)	5	PBA-24/60,PBA-33/60 thru PBA-40/60 PBA-30/50 thru PBA-37/50	380-01515	290633
40 x 124 (1016 x 3149.6)	5	PBA-41/60 thru PBA-48/60 PBA-38/60 thru PBA-45/60	380-01516	290634

This filter media is truly a high efficiency filter medium. It is a 2 ply filter constructed from 100% synthetic fibers chemically bonded together with a moisture resistant, fire retardant bonding agent. The filter yields 60% to 70% efficiency as determined by National Bureau of Standards discoloration procedures using atmospheric dust as the test aerosol.

Custom sizes are available, call Miltec for pricing and availability.



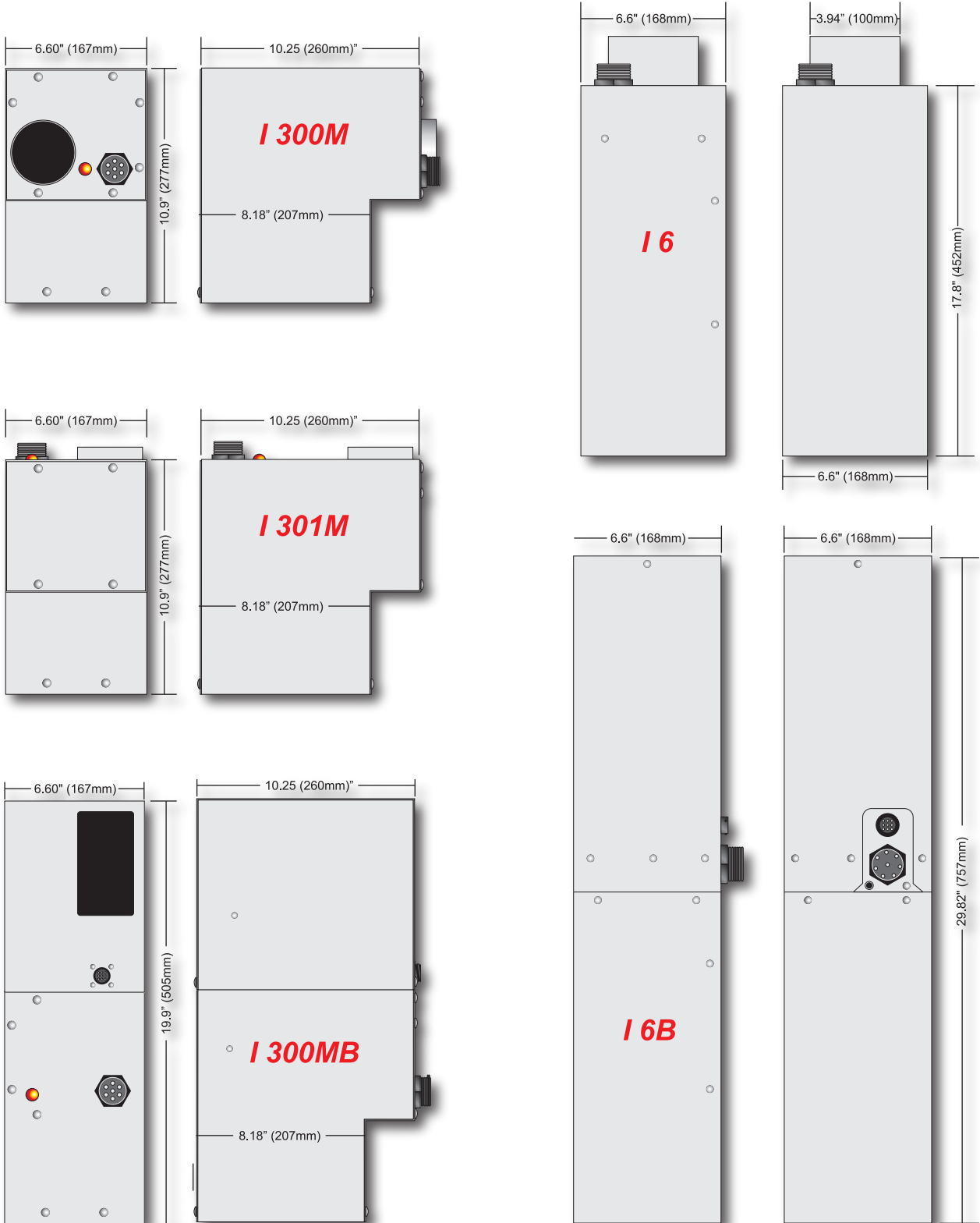
10" Irradiator Configurations



Section 1

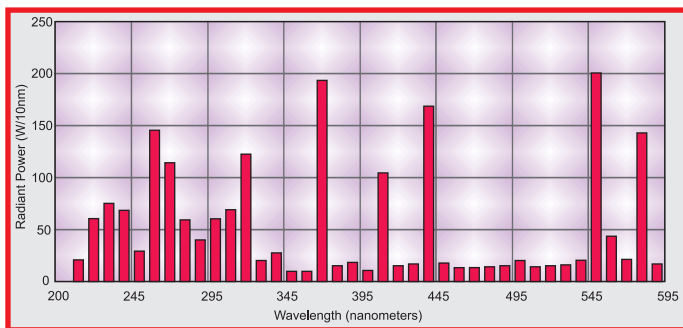
Irradiator Identifiers

6" Irradiator Configurations

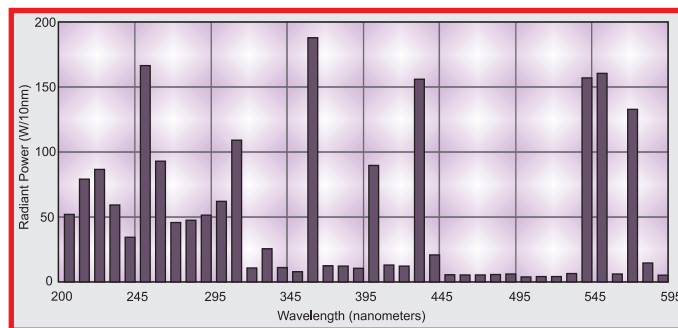


Spectral Outputs

H Bulb



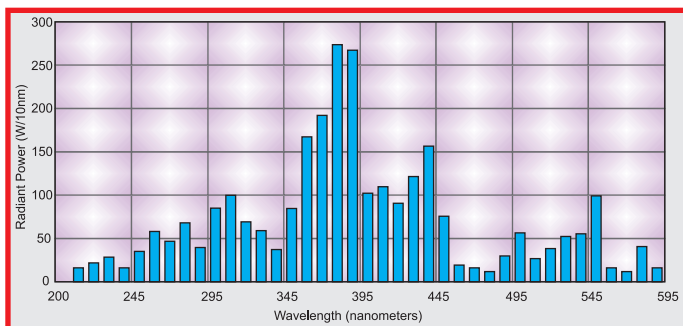
H+ Bulb



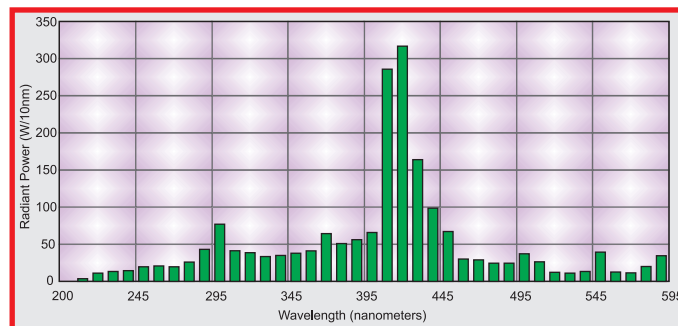
H and H+ Bulb Spectral Distribution

These graphs display the distribution of light radiated from a microwave powered (electrodeless) medium pressure Mercury vapor lamp. The distribution is shown as a function of radiant power (in Watts) for each 10 nm wavelength band over the entire UV range (between 200 and 450 nm). These two bulbs will contain only Hg, which inherently have a significant spike of energy in the longwave region (at 365nm), and the majority of its output in the shortwave UV range (between 220 and 320nm). The H+ bulb is formulated to produce about 25% more shortwave energy between 220 and 250nm. Most UV curable formulations will benefit from the contributions of short and longwave UV. It is a known fact that all UV curable materials will absorb (or block) much of the short wavelengths of light from penetrating into the depths of the material, even if the material appears to be clear. Therefore, the shortwave UV will cure the top surface of the material while the longwave UV will penetrate into the depths of the material to cure through to the adhesion layer at the substrate. It is important to note that the photoinitiator is the component in all UV curable formulations that absorb the UV light and cause the material to cure. The absorption response of the photoinitiator is also a measure of its photo activity. Obviously, in order to achieve efficient curing, it is important to match the spectral output of the bulb to the absorption response of the photoinitiator as well as the absorption characteristics of the complete formulation. It would not be desirable to cure thick pigmented coatings/inks with an H or H+ bulb. However, because the H and H+ bulbs are rich in the shortwave UV range, these bulbs would be the clear choice for curing clear coatings that are formulated with a photoinitiator (such as Benzophenone) that has excellent absorption in the shortwave UV range and some absorption at 365nm. Curing inks with an H bulb can be viable in applications where the ink contains shortwave reactive photoinitiator and is applied in extremely thin layers, such as inkjet printing or some flexo-offset printing.

D Bulb



V Bulb



D bulb Spectral Distribution

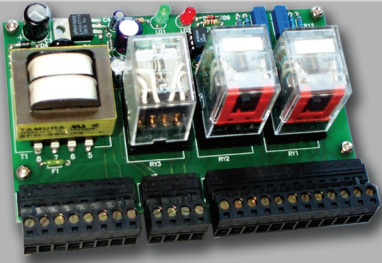
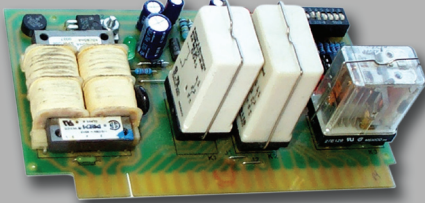
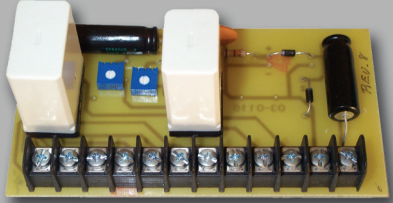
This graph displays the distribution of light radiated from a microwave powered (electrodeless) medium pressure Mercury vapor lamp with an Iron additive. The Iron is vaporized along with the Hg and reaches a plasma state. Some of the UV light output comes from the Hg and some from the Iron. While Hg emits most of its radiant output in the shortwave UV, the Iron has strong output in the longwave range between 320 and 400nm. The longwave UV is particularly important when curing optically opaque materials such as heavily pigmented screen printing inks. Most inks, especially the darker ones such as black, blue, green, and red are extremely absorptive in the short-to-medium wavelength range (up to about 300nm), but have good transmission in the longer wavelength range (above 320nm). Consequently, most heavily pigmented inks and coatings are formulated with long wavelength photoinitiators, and are cured very effectively with the Iron additive lamp.

V bulb Spectral Distribution

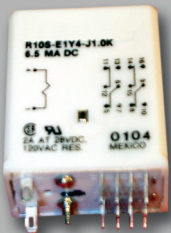

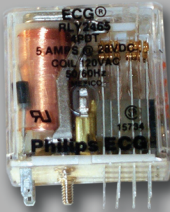
This graph displays the distribution of light radiated from a microwave powered (electrodeless) medium pressure Mercury vapor lamp with a Gallium additive. The Gallium is vaporized along with the Hg and reaches a plasma state. Some of the UV light output comes from the Hg and some from the Gallium. While Hg emits most of its radiant output in the shortwave UV, the Gallium has strong output in the longwave range between 405 and 440nm. Consequently, applications that require UV output which are rich in the 405-440nm range will be an excellent match for the Gallium additive lamp. One example is curing white pigmented inks, which contain titanium dioxide, the typical pigment of choice for white inks. TiO₂ absorbs most UV (200-410nm) but reflects most visible light (430-700nm). However, there is a small range in this material where light can penetrate (between 410-430nm). If the Gallium additive lamp is used, white inks can be cured very effectively. Other practical applications for the Gallium lamp are ones where very deep penetration of light is required, which can be several inches thick. One example of this is curing molds for eye glass lenses. The long wavelengths of radiant energy will penetrate much more effectively than the shorter wavelengths, and make it possible to achieve good cure into the thick depths of materials. For both examples above, it is vital for the ink or resin formulations to include photoinitiators with good absorption in the 405-440nm range in order to make the Gallium additive lamp a good choice and viable for these applications.

Section 2

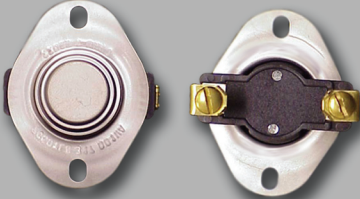

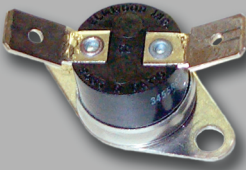
LAMP MONITOR CONTROL

Miltec P/N	Replaces All	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-00116	Aetek SB's	220-00118	03-00118	220-00113	03-00116
Miltec Voltage Sensing Board		LVM Sensor Board		Mod I Sensor Board	
					
<p><u>Application:</u> Replaces all Aetek voltage sensing boards. No more searching for hard to find, antiquated or expensive proprietary replacement components and relays. Uses ten turn precision adjustment trim pots for easy and exact setup. Standard socketed 24vdc Ready and Fail relays, contacts rated at 6A/250vac, includes socketed 120vac meter switching relay. <i>Includes mounting bracket and relays. See UV Supplies section for details.</i></p>		<p><u>Application:</u> Used with all Aetek constant wattage models (UVXL, UVPak, UltraPAK, FlexPak, Type 801 and Webflex). This device detects the lamp voltage and acts to integrate and display "Lamp Ready" and "Lamp Fail" conditions with the control logic of the lamp circuit. The voltmeter switching control (multi-lamp systems only) is also part of this board logic. <i>Relays sold separately.</i></p> <p>Miltec repairs LVM Sensor Boards</p>		<p><u>Application:</u> Used with older Aetek models (UVXL, Type 801, Mod1 and Mod2). This device detects lamp voltage and acts to integrate and display "Lamp Ready" and "Lamp Fail" conditions with the control logic of the lamp circuit. Original "Ready" and "Fail" relays are no longer manufactured. Miltec can modify this board to use the same relays as the LVM sensor board. <i>Relays sold separately.</i></p> <p>Miltec repairs Mod 1 Sensor Boards</p>	

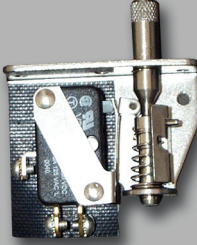

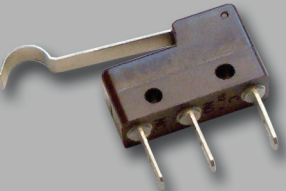
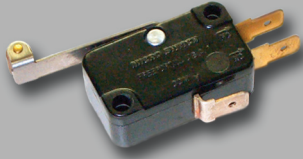
SENSOR BOARD RELAYS

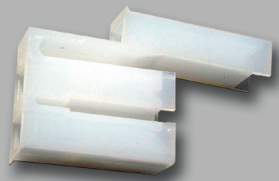

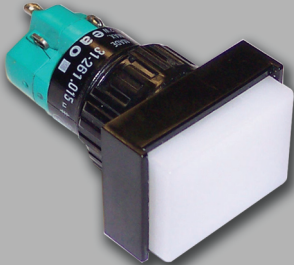

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-00125	02-02601	220-00127	02-02602	220-00123	03-00120
Ready Relay		Fail Relay		Meter Switching Relay	
					
<p><u>Application:</u> Used with LVM and MOD 1 sensor boards to detect nominal lamp voltage.</p>		<p><u>Application:</u> Used with LVM and MOD 1 sensor boards to detect open circuit voltage.</p>		<p><u>Application:</u> Used with LVM and MOD 1 sensor boards for panelmeter select interface.</p>	

THERMAL PROTECTION SWITCHES


Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-00140	02-02369	220-00146	02-02365	220-00148	02-00105
Thermal switch, N.C. 350°F		Thermal switch, N.C. 190°F		Thermal switch, N.C. 300°F	
					
<p><u>Application:</u> Used with model UVXL to monitor lamp housing temperature, safety interlock.</p>		<p><u>Application:</u> Used with model 801 to monitor lamp housing temperature, safety interlock.</p>		<p><u>Application:</u> Used with model PAK to monitor lamp housing temperature, safety interlock.</p>	

CONTROL AND SAFETY SWITCHES





Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-00190	02-00112	220-00150	02-00002	220-00195	02-04791	220-00180	02-02220
Metal Door Switch		Shutter Limit Switch		Shutter Limit Switch		Housing Interlock	
							
<u>Application:</u> Used for panel and door access interlocks.		<u>Application:</u> Used as the shutter limit switch for model UVXL.		<u>Application:</u> Used as the shutter limit switch for model PAK.		<u>Application:</u> Used as the housing interlock for UVXL and PAK.	



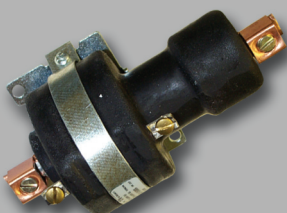
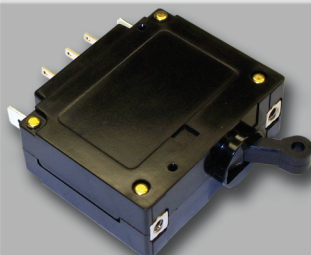
Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-00420	02-02121	220-00460	02-02122	220-00230	02-00015	220-00270	02-00150
Switch Housing		Crimp Terminal		Power On - maintained		Lamp On - momentary	
							


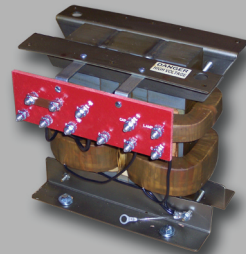


CABLE CONNECTORS

Miltec P/N	220-40850	Miltec P/N	220-40810	Miltec P/N	220-40740	Miltec P/N	220-40890
1 pin, female, HV plug, 90°		1 pin, female, HV plug, ST		1 pin, male, HV chassis		Boot and Clamp Assy.	
							
Miltec P/N	220-40830	Miltec P/N	220-40870	Miltec P/N	220-40780	Miltec P/N	220-40833
6 pin, female, HV plug, ST		6 pin, female, HV plug, 90°		6 pin, male, HV chassis		6 pin, male, HV plug, ST	
							

HIGH VOLTAGE COMPONENTS

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
010-00100	02-00970	010-00710	02-00002	220-23060	04-05120	220-23050	04-06947
Metal Clamp Standoff		1" Ceramic Cone		5/8" Ceramic Cone		1/2" Ceramic Barrel	
							
<u>Application:</u> Used as a lamp holder for metal end type lamps.		<u>Application:</u> Used as a lamp wire tie point for model UVXL.		<u>Application:</u> Used as a lamp wire tie point for model PAK.		<u>Application:</u> Used as a lamp wire tie point for older model PAK.	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
010-00260	03-01025	010-00242	NA	010-00050	02-00088	010-00600	02-01297
Potential Transformer		Current Transformer		Mercury Contactor		Ground Fault Switch	
							
<u>Application:</u> Used with all Aetek constant wattage models. This device is used to interface the lamp voltage with the control logic of the lamp circuit and also acts as a source signal for the panel voltmeter.		<u>Application:</u> Used with all Aetek models as a signal source for the lamp current meter.		<u>Application:</u> Used with constant wattage models (UVXL, UVPAK, UltraPAK, FlexPak, Type 801 and Webflex). This relay is used to control the power level selections by engaging or disengaging capacitors in the power supply.		<u>Application:</u> Used on all Aetek models. This ground fault switch acts as a safety interlock and senses any short to ground on the lamp side of the ballast, interrupting power to the lamp contactor when tripped.	

Call for Pricing	Call for Pricing	Miltec P/N	Miltec P/N
All values and voltages	All sizes	010-00220	010-00200
High Voltage Capacitors	Lamp Ballasts	(0-2500) Lamp Voltmeter	(0-15) Lamp Ammeter
			
<u>Application:</u> Part of lamp circuit and power level control.	<u>Application:</u> Used as a lamp power source	<u>Application:</u> Used to monitor lamp voltage.	<u>Application:</u> Used to monitor lamp current.

PNEUMATIC COMPONENTS

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-40500	04-02042	220-40490	04-02036	220-40510	04-02037	220-70750	26455B
Shutter Air Cylinder		Shutter Air Cylinder		Shutter Air Cylinder		Shutter Air Cylinder	
<u>Application:</u> Shutter actuator for model UVXL longer than 35" arc.		<u>Application:</u> Shutter actuator for model UVXL less than 35" arc.		<u>Application:</u> Shutter actuator for model UVPK and UltraPAK		<u>Application:</u> Shutter actuator for model Webflex.	

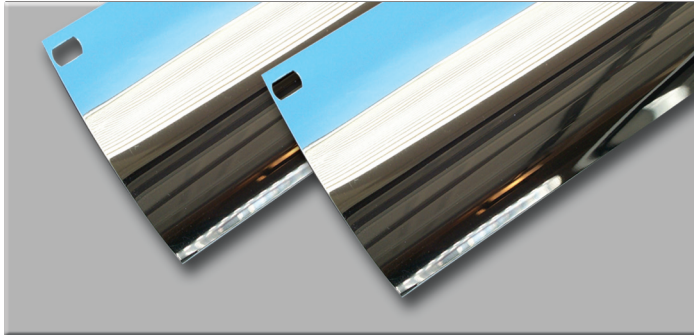
Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-40550	04-02640	220-40560	04-05153	220-40640	04-05148	220-40660	04-02644
Needle Valve		Connector		90° Air Fitting		Straight Air Fitting	
<u>Application:</u> Air limiter for shutter cylinder, all models.		<u>Application:</u> Air line connector to needle valve, all models.		<u>Application:</u> 1/4" quick connector for shutter air line, model UVXL.		<u>Application:</u> 1/4" quick connector for shutter air line, model PAK.	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-40490		220-45200	04-07306	220-40920	04-00706	220-40930	05-00450
Retainer Clip		Bronze Bushing		Bronze Bushing		Shutter Air Cylinder	
<u>Application:</u> Shutter shaft retainer clip for model UVXL and PAK.		<u>Application:</u> Shutter shaft bearing for model PAK.		<u>Application:</u> Shutter shaft bearing for model UVXL.		<u>Application:</u> Drill bushing for shutter cam block.	

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
220-40545	04-02042	220-00130	04-01670
Cam Block		Shutter Solenoid	
<u>Application:</u> Shutter shaft bearing for model UVXL longer than 35" arc.		<u>Application:</u> Shutter solenoid for all single power supply systems.	



REFLECTOR LINERS



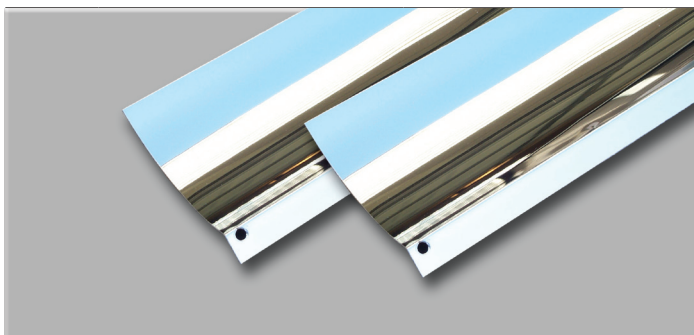
For model UVXL

Direct replacement reflector liners fabricated and curved to precise specifications of original equipment.

Milcure 1000, .030" enhanced reflector material is used to provide you with optimum reflectivity and UV efficiency beyond that of the original equipment manufactured part.

Optional dichroic coating available.

Arc	Miltec P/N	OEM P/N	Arc	Miltec P/N	OEM P/N
6	220-20030	19122B/06	25	220-20220B	15756B/25
8	220-20040	19122B/08	27	220-20240	19122B/27
9	220-20050	19122B/09	30	220-20260A	14171B/30
9	220-20054	15756B/09	30	220-20270B	15756B/30
12	220-20070A	19122B/12	30	220-20280C	19122B/30
12	220-20070B r.h.	14171B/12/1	34	220-20300	15756B/34
12	220-20070C l.h.	14171B/12/2	35	220-20310	19122B/35
14	220-20100	19122B/14	42	220-20350	19122B/42
18	220-20130A	15756B/18	48	220-20380	19122B/48
18	220-20130B r.h.	14171B/18/1	50	220-20400	19122B/50
18	220-20130C l.h.	14171B/18/2	55	220-20420	19122B/55
18	220-20160	19122B/18	60	220-20430	19122B/60
20	220-20170	19122B/20	65	220-20440	19122B/65
23	220-20190	15756B/23	72	220-20450	19122B/72
25	220-20210A	19122B/25			



For model UVPK and UltraPAK

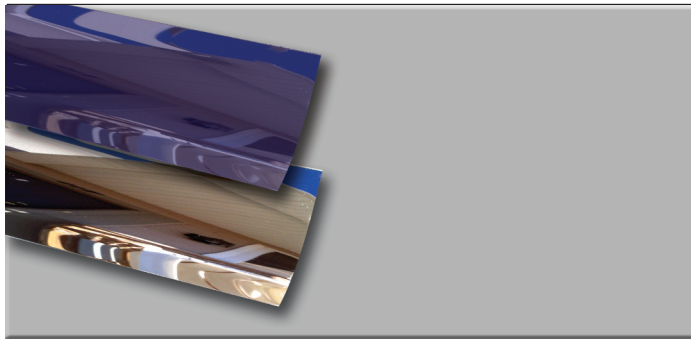
Direct replacement reflector liners fabricated with exact bends, holes and curved to precise specifications of original equipment.

Milcure 1000, .020" enhanced reflector material is used to provide you with optimum reflectivity and UV efficiency beyond that of the original equipment manufactured part.

Optional dichroic reflector liners available.

Arc	Miltec P/N	OEM P/N	Arc	Miltec P/N	OEM P/N
6	220-20030	19122B/06	25	220-20220B	15756B/25
8	220-20040	19122B/08	27	220-20240	19122B/27
9	220-20050	19122B/09	30	220-20260A	14171B/30
9	220-20054	15756B/09	30	220-20270B	15756B/30
12	220-20070A	19122B/12	30	220-20280C	19122B/30
12	220-20070B r.h.	14171B/12/1	34	220-20300	15756B/34

REFLECTOR LINERS



For model Webflex and Mflex

Direct replacement reflector liners fabricated and curved to precise specifications of original equipment.

Milcure 1000, .020" enhanced reflector material is used to provide you with optimum reflectivity and UV efficiency beyond that of the original equipment manufactured part.

Optional dichroic coating available.



For model 801 water-cooled reflector

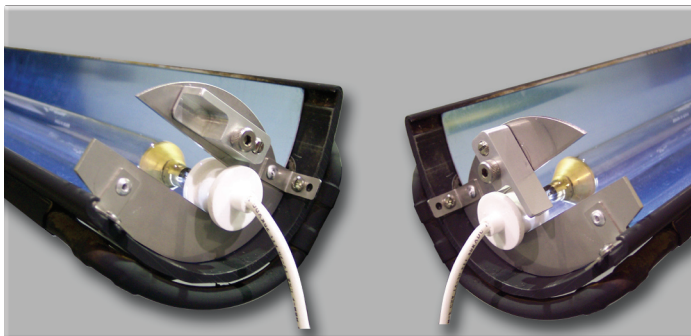
Direct replacement reflector liners fabricated and curved to precise specifications of original equipment.

Milcure 1000, .030" enhanced reflector material is used to provide you with optimum reflectivity and UV efficiency beyond that of the original equipment manufactured part.

Miltec P/N 220-00112

PRODUCT UPGRADES

MILCURE QR end plate system for model 801



For model 801 water-cooled reflector

Direct replacement, tool-less lamp holder end plates allow you easily change lamps with the flip of a latch. The design eliminates old locking plates coming loose, screws falling out, and inconvenient access. The secure latching mechanism keeps the lamp firmly in place until you are ready to release it.

Miltec P/N 220-24022

MILCURE 1000 slide-in reflector liner for model 801



For model 801 water-cooled reflector

Direct replacement, Milcure 1000 reflector liner fabricated for easily sliding the liner into the extrusion and cut to longer lengths to eliminate any center sections. The slide-in reflector liner fits against the reflector extrusion more precisely, leaving no air gaps and maximizing the heat transfer to the water-cooled extrusion.

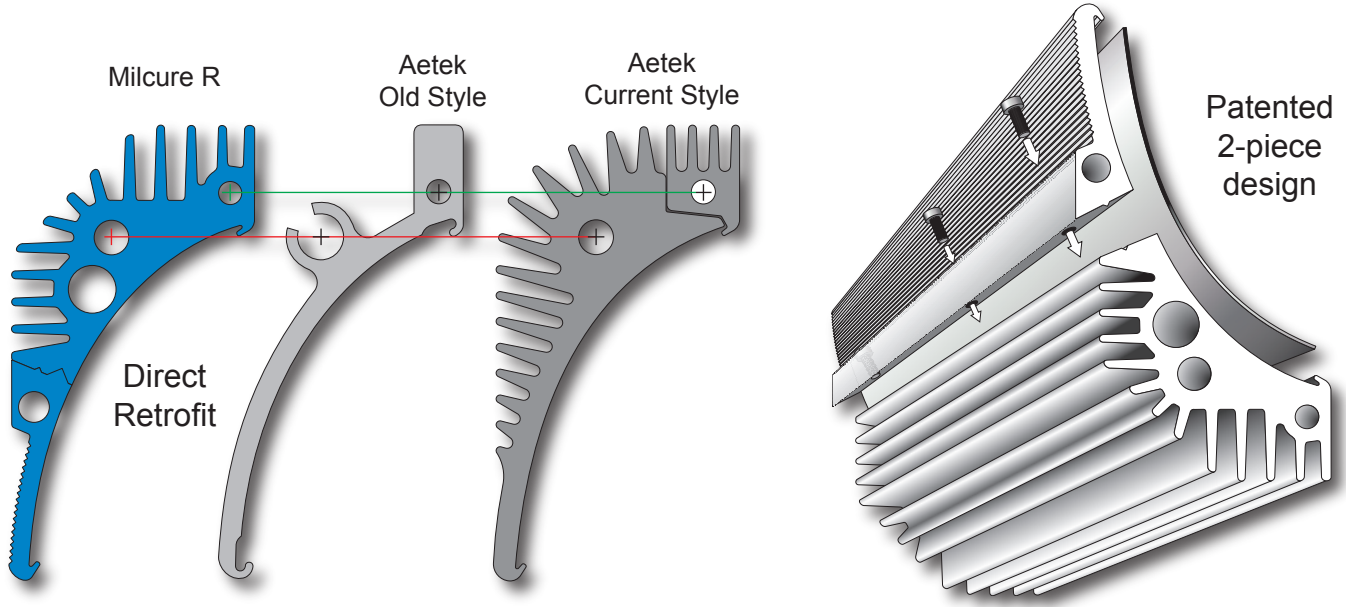
55" - Miltec P/N 220-00107 (2 pieces required)

48" - Miltec P/N 220-00108 (2 pieces required)

SHUTTER SYSTEMS

MILCURE R Shutters patent# 6,720,566 B2

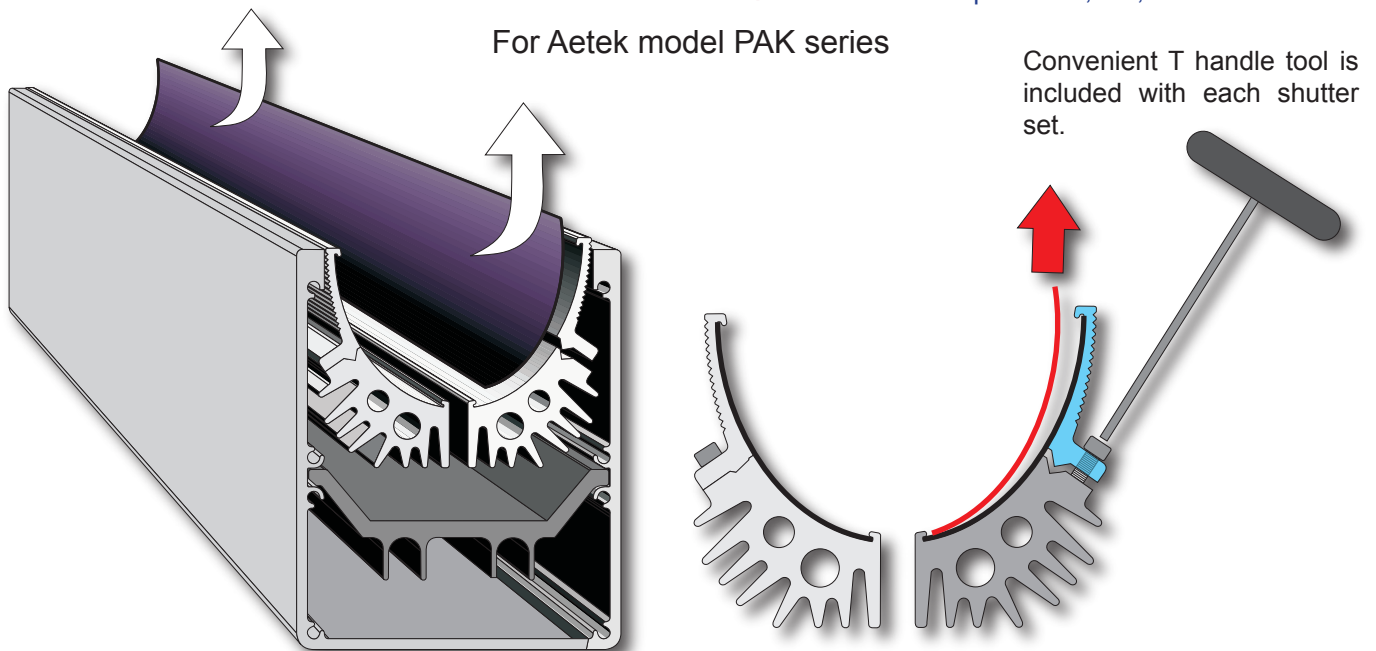
For Aetek model UVXL series





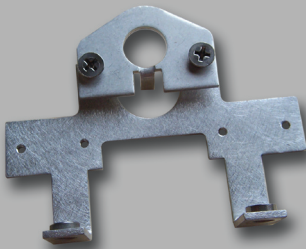

The patented Milcure R and RPK shutter systems (patent# 6,720,566 B2) are direct replacement upgrades for your Aetek UVXL and PAK lamp modules. The unique benefit of being able to replace reflector liners without removing the shutters will save you time and make it a simple maintenance procedure. The Milcure R and RPK shutter systems are designed to accept dichroic reflector liners or standard reflector liners. The precision clamping feature of the 2-piece design forces the liner to be securely seated against the shutter extrusion for maximum heat transfer efficiency and reflector liner life. Shutters are fabricated in our machine shop, usually within one or two days, so there are no long waits for orders. All shutters are complete with all associated shafts and pins for direct retrofit.



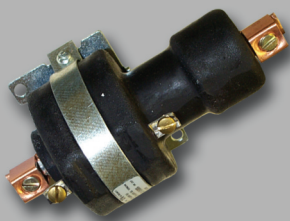
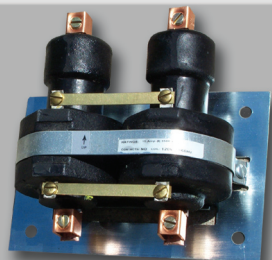
MILCURE RPK Shutters patent# 6,720,566 B2


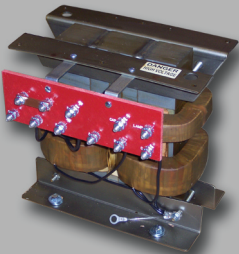


For Aetek model PAK series

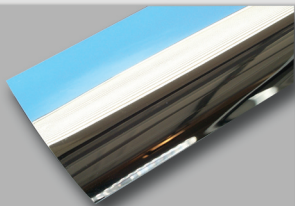


HIGH VOLTAGE and CONTROL COMPONENTS

Miltec P/N	355-02000	Miltec P/N	355-03500	Miltec P/N	355-05101	Miltec P/N	220-00150
High Voltage Standoff		Jumper Wire		Lamp Holder Plate			
							
<u>Application:</u> Used as a connection point for the lamp wires.		<u>Application:</u> Used to connect the front lamp wire to the rear TP.		<u>Application:</u> Retrofit lamp holder.		<u>Application:</u> Safety interlock switch for the lamp position.	

Miltec P/N	010-00260	Miltec P/N	055-00200	Miltec P/N	010-00040	Miltec P/N	010-00030
Potential Transformer		Current Transformer		Mercury Contactor, N.C.		Mercury Contactor, N.O.	
							
<u>Application:</u> Used as a lamp voltage monitoring upgrade and acts as a source signal for the panel voltmeter 010-00220		<u>Application:</u> Used with all models as a signal source for the lamp current meter.		<u>Application:</u> Used with constant wattage power supplies to control lamp power levels.		<u>Application:</u> Used on all Dubois constant wattage models to enable the lamp circuit.	

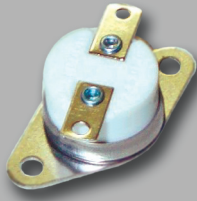
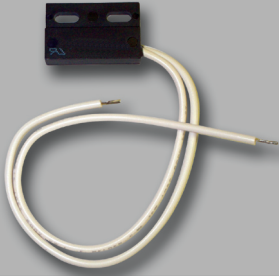
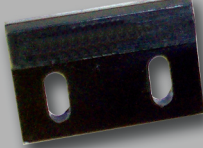
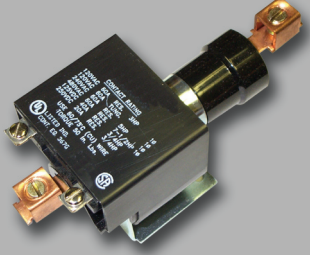
All values and voltages	All sizes	Miltec P/N	010-00220	Miltec P/N	010-00200
High Voltage Capacitors	Lamp Ballasts	(0-2500)	Lamp Voltmeter	(0-15)	Lamp Ammeter
					
<u>Application:</u> Part of lamp circuit and power level control.	<u>Application:</u> Used as lamp power source.	<u>Application:</u> Used to monitor lamp voltage.		<u>Application:</u> Used to monitor lamp current.	



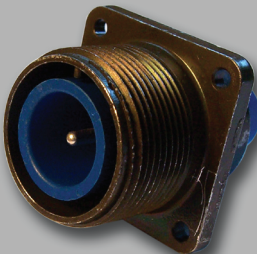

	Milcure 1000 pre-curved reflector liners. Custom sizes also available.	12"	1 piece, pre-curved	355-00200
		22"	1 piece, pre-curved	355-00300
		23"	1 piece, pre-curved	355-00350
		30"	1 piece, pre-curved	355-00450
		48"	2 piece, pre-curved	355-00555
		55"	2 piece, pre-curved	355-00725
		60"	2 piece, pre-curved	355-00800
72"	2 piece, pre-curved	355-00900		




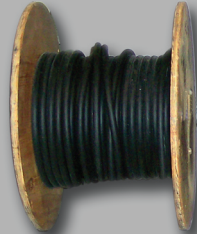


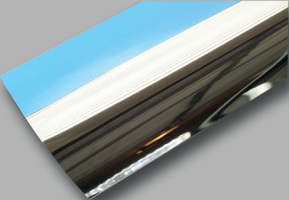
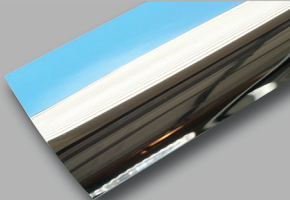


Section 2

COMPONENTS

Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N	Miltec P/N	OEM P/N
510-06500	10-0000-87	510-07500	75-0003-00	510-07580	75-0004-00	010-00020	NA
Temperature Switch, 220°F		Proximity Sensor		Magnet		Mercury Relay, 24VDC	
							
<u>Application:</u> Thermal monitor for lamp over-temperature fault.		<u>Application:</u> Used to detect shutter open position.		<u>Application:</u> Mated piece for 510-07500 proximity sensor.		<u>Application:</u> Used for capacitor power level switching. (N.O.)	

Miltec P/N	510-04500	Miltec P/N	510-00000	Miltec P/N	220-40740	Miltec P/N	220-40810
HV Ceramic Standoff		HV Ceramic Standoff		1 pin, male, HV chassis		1 pin, female plug, HV	
							
<u>Application:</u> Used as a lamp wire connector.		<u>Application:</u> Used as a lamp wire connector.		<u>Application:</u> HV connector at lamp housing for cable.		<u>Application:</u> HV plug connector for high voltage cable.	

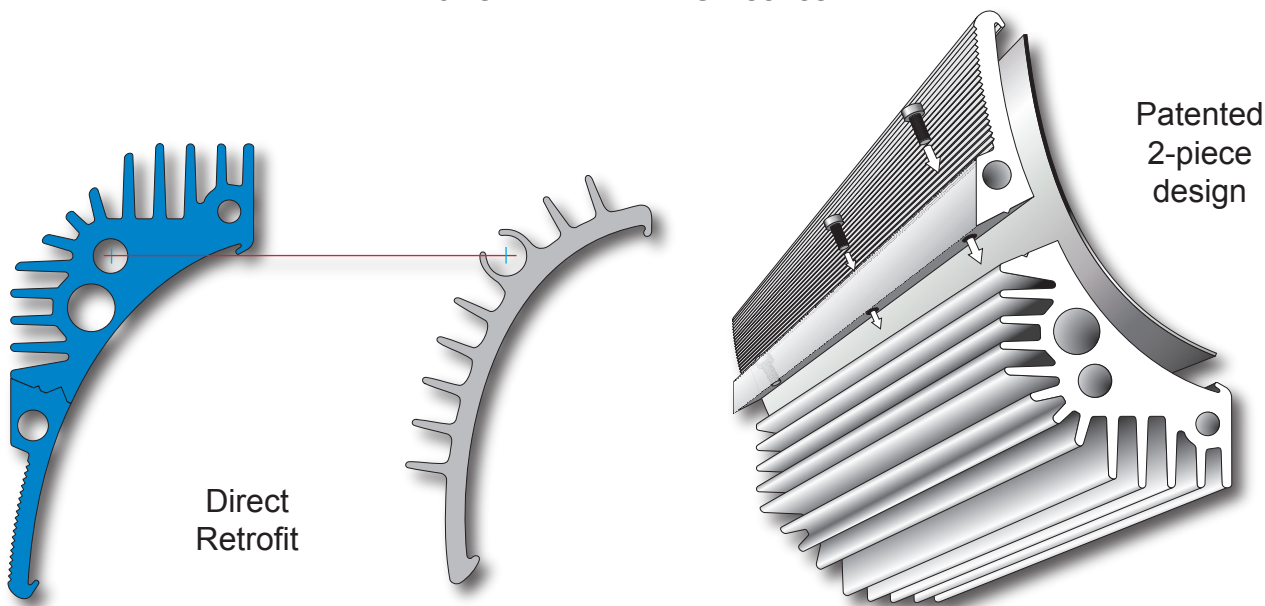
Miltec P/N	510-05050	Miltec P/N	510-05050	Miltec P/N	220-40885	Miltec P/N	010-00390
10 pin, male, LV chassis		10 pin, female plug, LV		Boot and Clamp Assembly		High voltage cable	
							
<u>Application:</u> LV connector at lamp housing for cable.		<u>Application:</u> LV plug connector for control cable.		<u>Application:</u> Strain relief for high and low voltage SOOW cable.		<u>Application:</u> HV shielded SOOW cable.	

Miltec P/N	510-00500	Miltec P/N	510-00550	Miltec P/N	CALL	Miltec P/N	CALL
Reflector liner, 24" arc		Reflector liner, 34" arc		Lamp Ballasts, all sizes		Capacitors, all values	
							

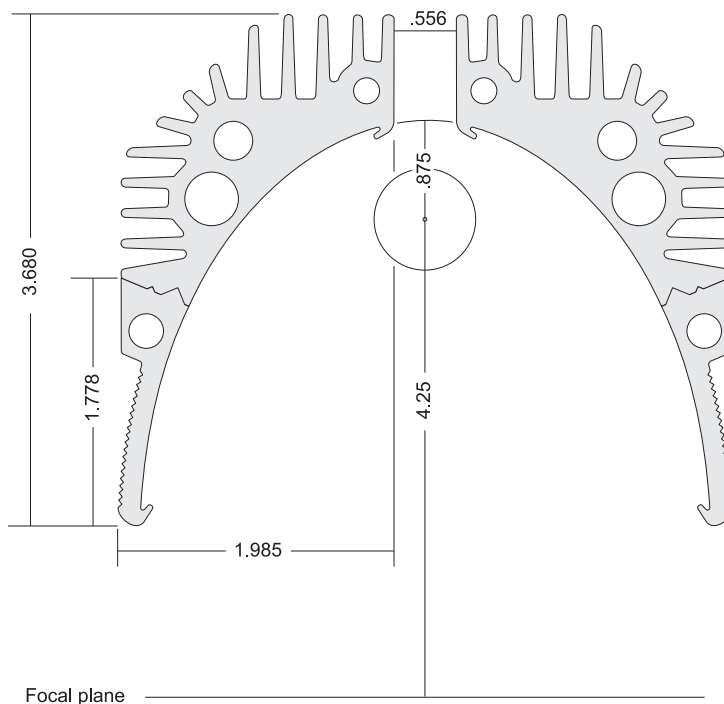
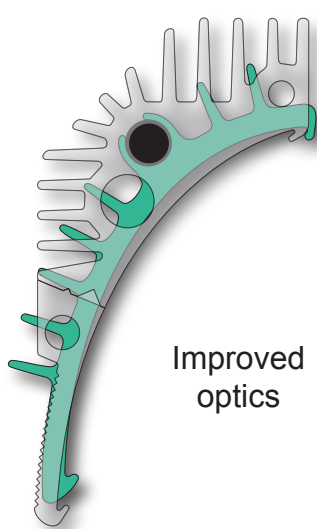
SHUTTER SYSTEMS

MILCURE R Shutters patent# 6,720,566 B2

For ONLINE ENERGY series



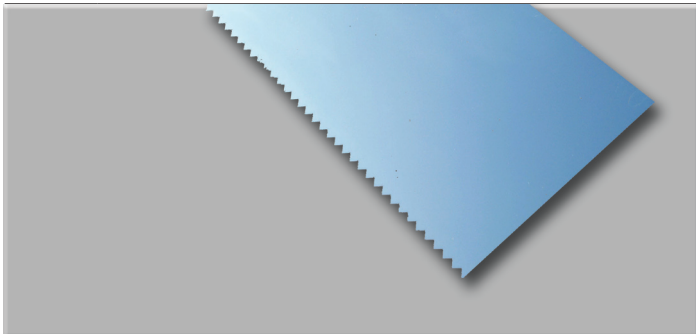
The patented Milcure R shutter system ([patent# 6,720,566 B2](#)) is a direct replacement upgrade for your Online Energy lamp module. The unique benefit of being able to replace reflector liners without removing the shutters will save you time and make it a simple maintenance procedure. The Milcure R shutter system is designed to accept dichroic reflector liners or standard reflector liners. The precision clamping feature of the 2-piece design forces the liner to be securely seated against the shutter extrusion for maximum heat transfer efficiency and reflector liner life. Shutters are fabricated in our machine shop, usually within one or two days, so there are no long waits for orders. All shutters are complete with all associated shafts and pins for direct retrofit.



COMPONENTS

Miltec P/N 530-05580	Miltec P/N 530-05560	Miltec P/N 530-05750	Miltec P/N 530-05595
Thermal Switch, 300°F	Thermal Switch, 150°F	RTD device, 400°F	Current sensing relay
			
<u>Application:</u> Temperature monitor for over-temperature fault.	<u>Application:</u> Temperature monitor for low temperature condition.	<u>Application:</u> Temperature monitor for PLC controlled systems.	<u>Application:</u> Current sensing for lamp fault condition.
Miltec P/N 530-05600	Miltec P/N 220-00190	Miltec P/N 530-05400	Miltec P/N 010-00710
Shutter limit switch	Interlock switch	HV ceramic standoff	HV ceramic standoff
			
<u>Application:</u> Shutter "open" signal switch.	<u>Application:</u> LV plug connector for control cable.	<u>Application:</u> HV connector at lamp housing for cable.	<u>Application:</u> HV plug connector for high voltage cable.
Miltec P/N 530-05900	Miltec P/N 530-05950	Miltec P/N 220-40740	Miltec P/N 220-40810
5 pin, male, HV chassis	5 pin, female plug, LV	1 pin, male, HV chassis	1 pin, female plug, HV
			
<u>Application:</u> LV connector at lamp housing for cable.	<u>Application:</u> LV plug connector for control cable.	<u>Application:</u> HV connector at lamp housing for cable.	<u>Application:</u> HV plug connector for high voltage cable.
Miltec P/N 220-40885	Miltec P/N 530-05960	Miltec P/N 010-00015	Miltec P/N 010-00050
Boot and Clamp Assembly	5 pin, male plug, LV	Mercury Relay, 24VDC	Mercury Relay, 120VAC
			
<u>Application:</u> Strain relief for high and low voltage SOOW cable.	<u>Application:</u> LV plug connector for control cable.	<u>Application:</u> Used for capacitor power level switching. (N.O.)	<u>Application:</u> Used for capacitor power level switching. (N.O.)

REFLECTOR LINERS



For all Prime UV models

Direct replacement reflector liners fabricated with exact bends, holes and curved to precise specifications of original equipment.

Milcure 1000, .012" enhanced reflector material is used to provide you with optimum reflectivity and UV efficiency beyond that of the original equipment manufactured part.

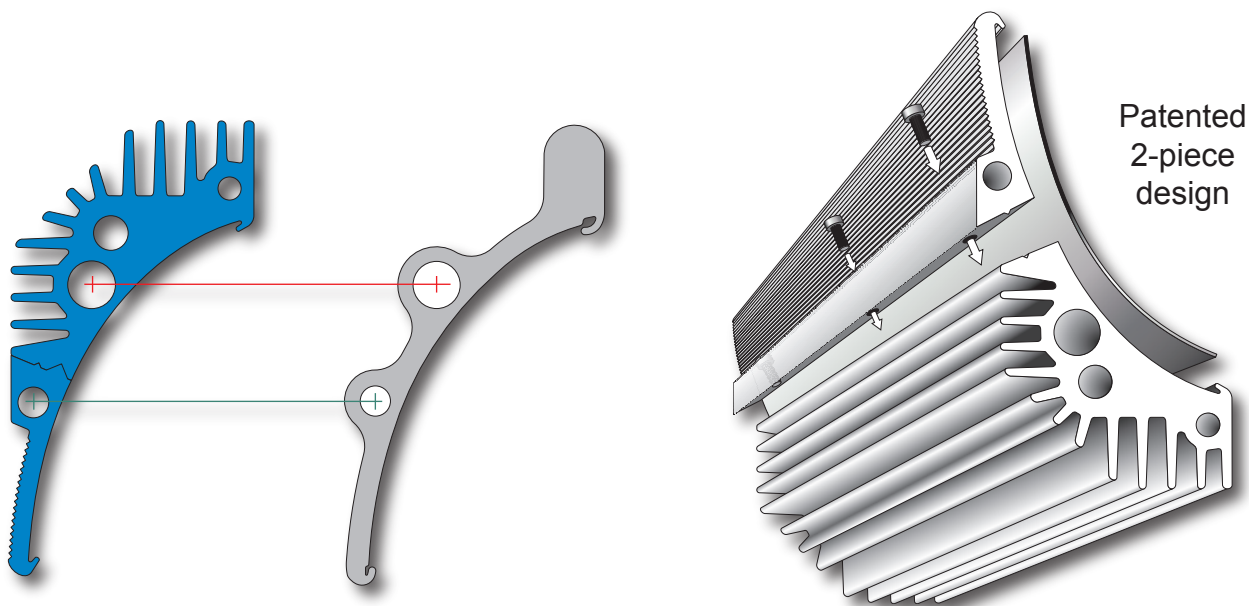
Arc	Dimensions	Miltec P/N	Arc	Dimensions	Miltec P/N
	.012 x 3.697 x 20"	530-01020		.012 x 3.697 x 35.5"	530-00835
	.012 x 3.697 x 26.5"	530-00826		.012 x 3.697 x 37.25"	530-00837
	.012 x 3.697 x 27"	530-00832		.012 x 3.697 x 40"	530-00930
	.012 x 3.697 x 28.375"	530-00840		.012 x 3.697 x 42"	530-00933
	.012 x 3.697 x 30"	530-00831		.012 x 3.697 x 48"	530-00848
	.012 x 3.697 x 32"	530-00925			

Miltec P/N	530-05300
Shutter air cylinder	
<p><u>Application:</u> Pneumatic shutter actuator.</p>	

MILCURE R Shutters patent# 6,720,566 B2

For Prime UV series

The patented Milcure R shutter system ([patent# 6,720,566 B2](#)) is a direct replacement upgrade for your Prime UV lamp module. The unique benefit of being able to replace reflector liners without removing the shutters will save you time and make it a simple maintenance procedure. The Milcure R shutter system is designed to accept dichroic reflector liners or standard reflector liners. The precision clamping feature of the 2-piece design forces the liner to be securely seated against the shutter extrusion for maximum heat transfer efficiency and reflector liner life. Shutters are fabricated in our machine shop, usually within one or two days, so there are no long waits for orders. All shutters are complete with all associated shafts and pins for direct retrofit.



Patented 2-piece design

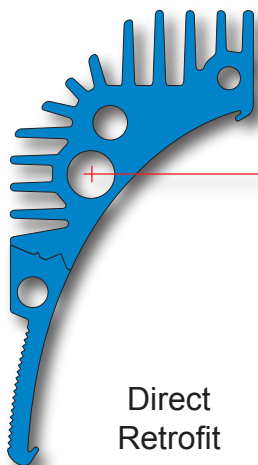


COMPONENTS

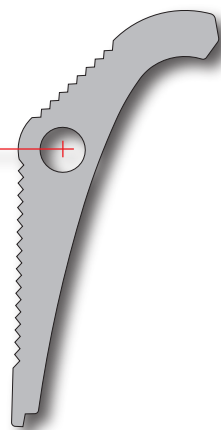
Miltec P/N 590-06500	Miltec P/N 590-06540	Miltec P/N 590-06580	Miltec P/N 590-08500
Thermal Switch, 300°F	Thermal Switch, 400°F	Thermal Switch, 550°F	Shutter limit switch
			
<u>Application:</u> Temperature monitor for over-temperature fault.	<u>Application:</u> Temperature monitor for low temperature condition.	<u>Application:</u> Temperature monitor for low temperature condition.	<u>Application:</u> Shutter "open" signal switch.
Miltec P/N 010-00050	Miltec P/N 590-00500	Miltec P/N 590-00505	Miltec P/N CALL
Mercury Relay, 120VAC	HV ceramic, barrel, 1 x .75"	HV ceramic, barrel, 1 x .5"	Lamp Ballasts, all sizes
			
<u>Application:</u> Used for capacitor power level switching. (N.O.)	<u>Application:</u> HV connector at lamp housing for cable.	<u>Application:</u> HV connector at lamp housing for cable.	<u>Application:</u> UV lamp power source.

The patented Milcure R shutter system ([patent# 6,720,566 B2](#)) is a direct replacement upgrade for your UVT Universal lamp module. The unique benefit of being able to replace reflector liners without removing the shutters will save you time and make it a simple maintenance procedure. The Milcure R shutter system is designed to accept dichroic reflector liners or standard reflector liners. The precision clamping feature of the 2-piece design forces the liner to be securely seated against the shutter extrusion for maximum heat transfer efficiency and reflector liner life. Shutters are fabricated in our machine shop, usually within one or two days, so there are no long waits for orders. All shutters are complete with all associated shafts and pins for direct retrofit.

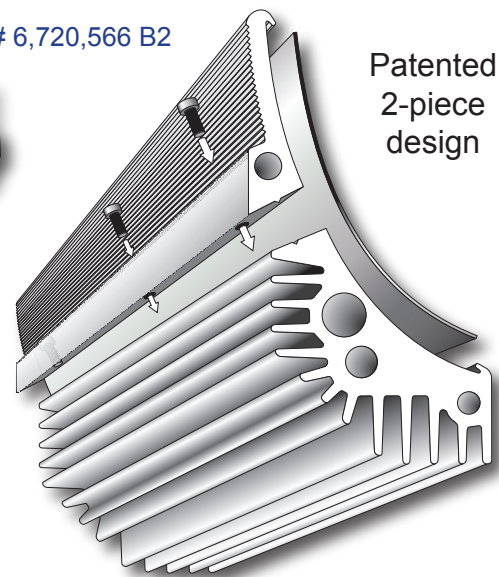
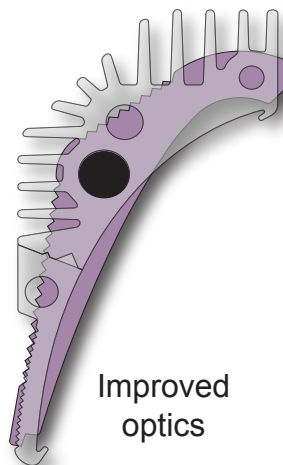
MILCURE R Shutters patent# 6,720,566 B2



Direct Retrofit



Improved optics



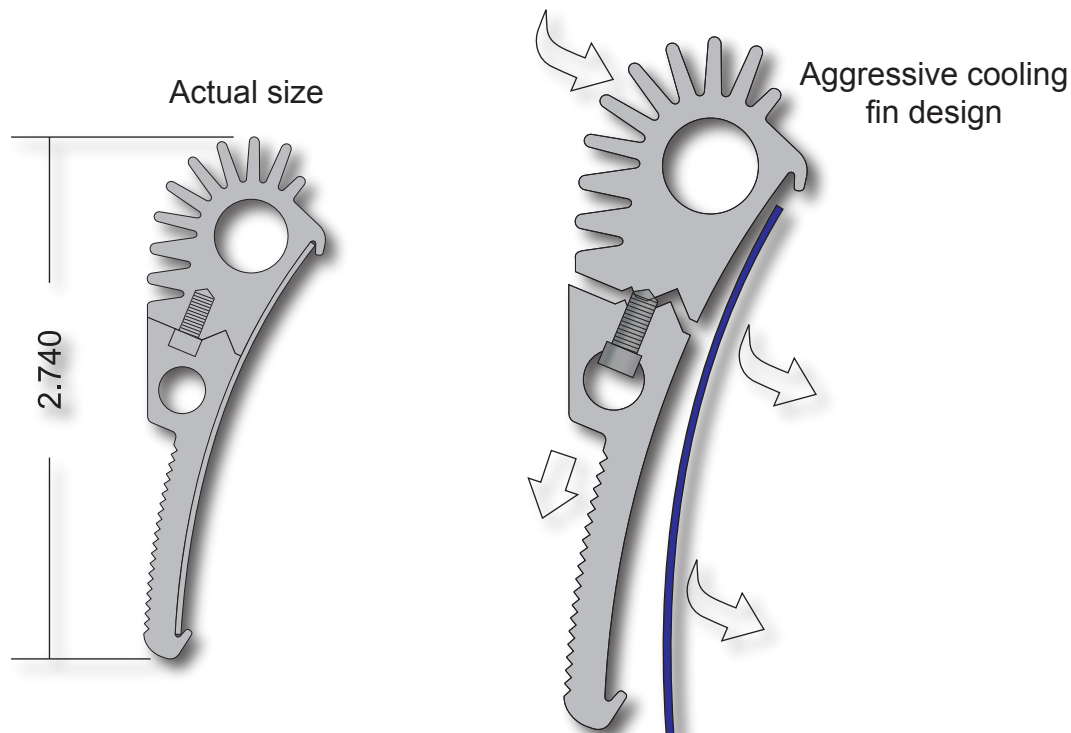
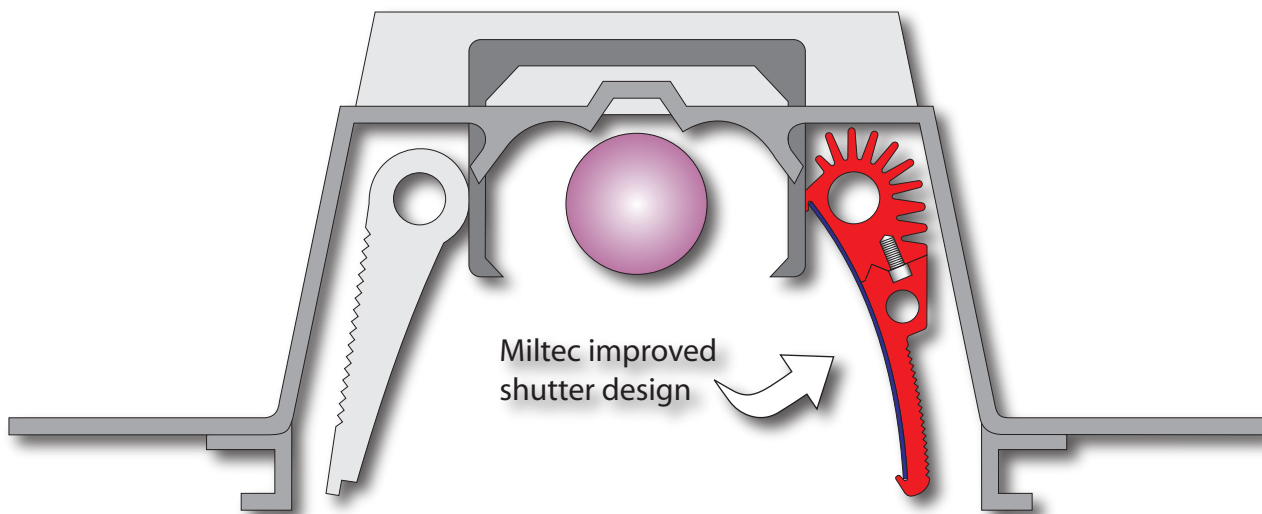
Patented 2-piece design

MILCURE RTL Shutters patent# 6,720,566 B2

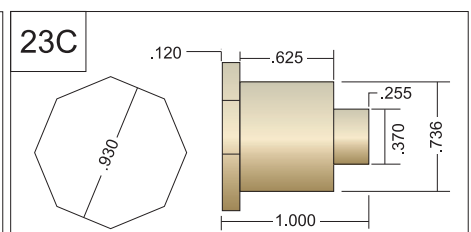
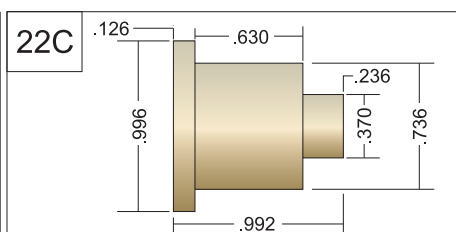
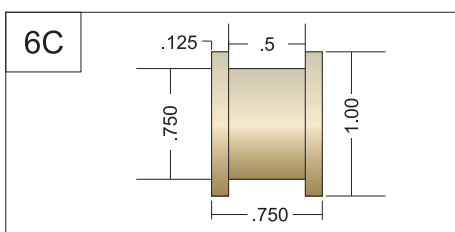
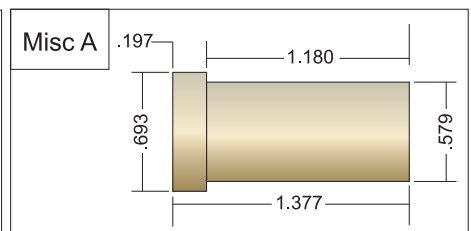
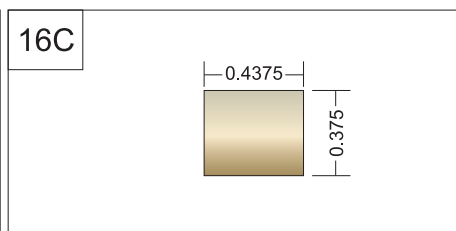
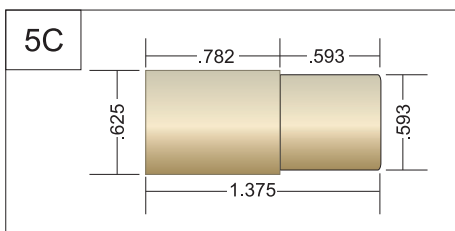
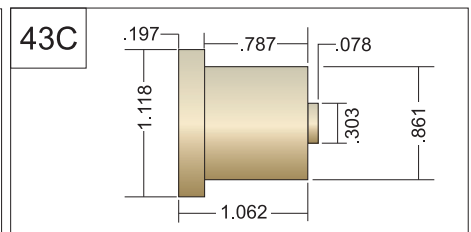
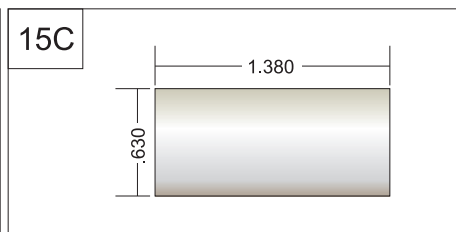
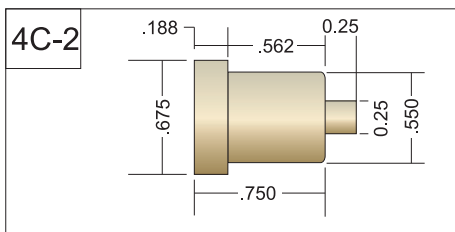
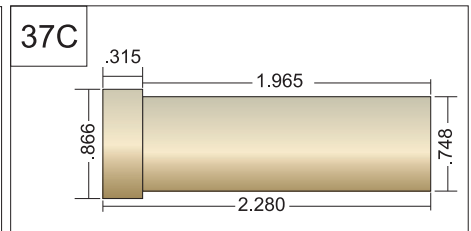
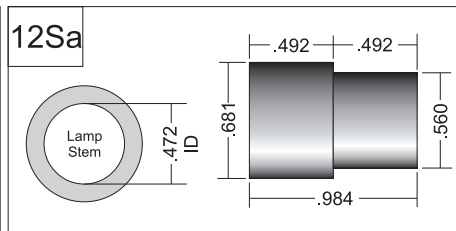
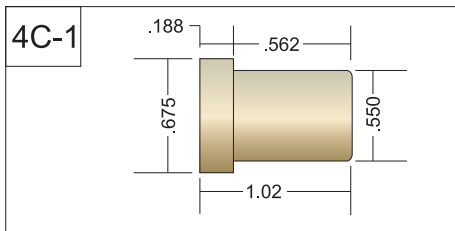
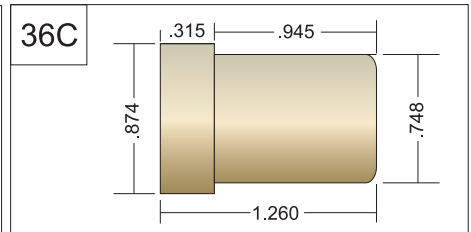
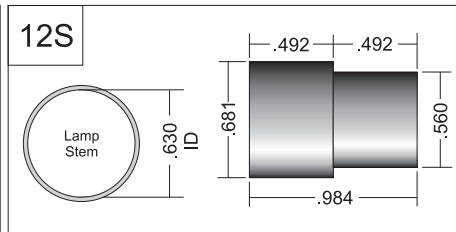
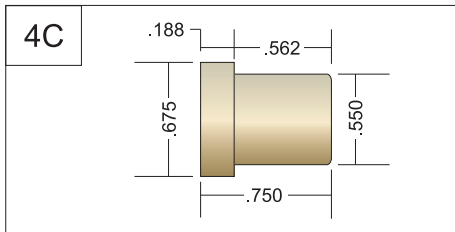
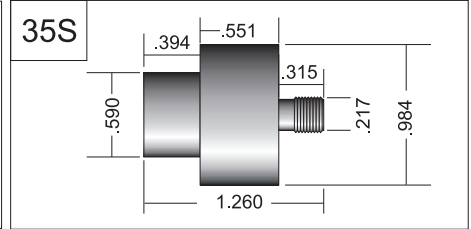
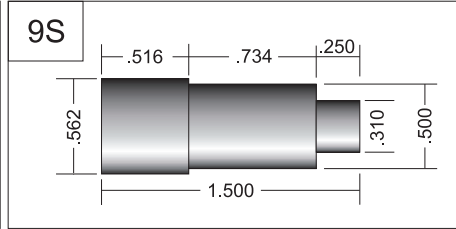
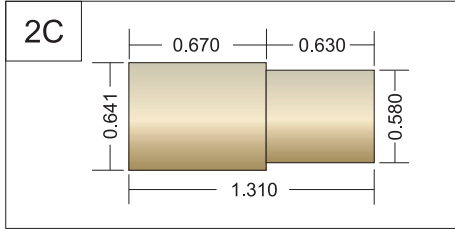
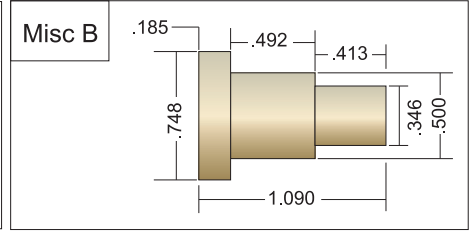
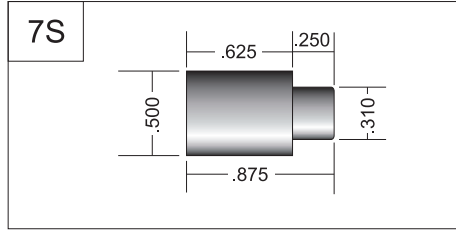
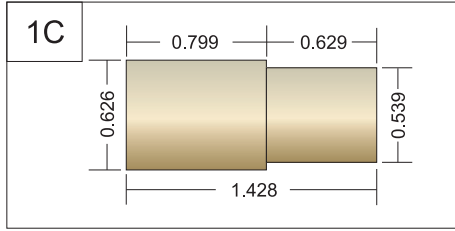
Simple 2 - piece design allows you to quickly change reflector liners without having to remove the shutter extrusions.

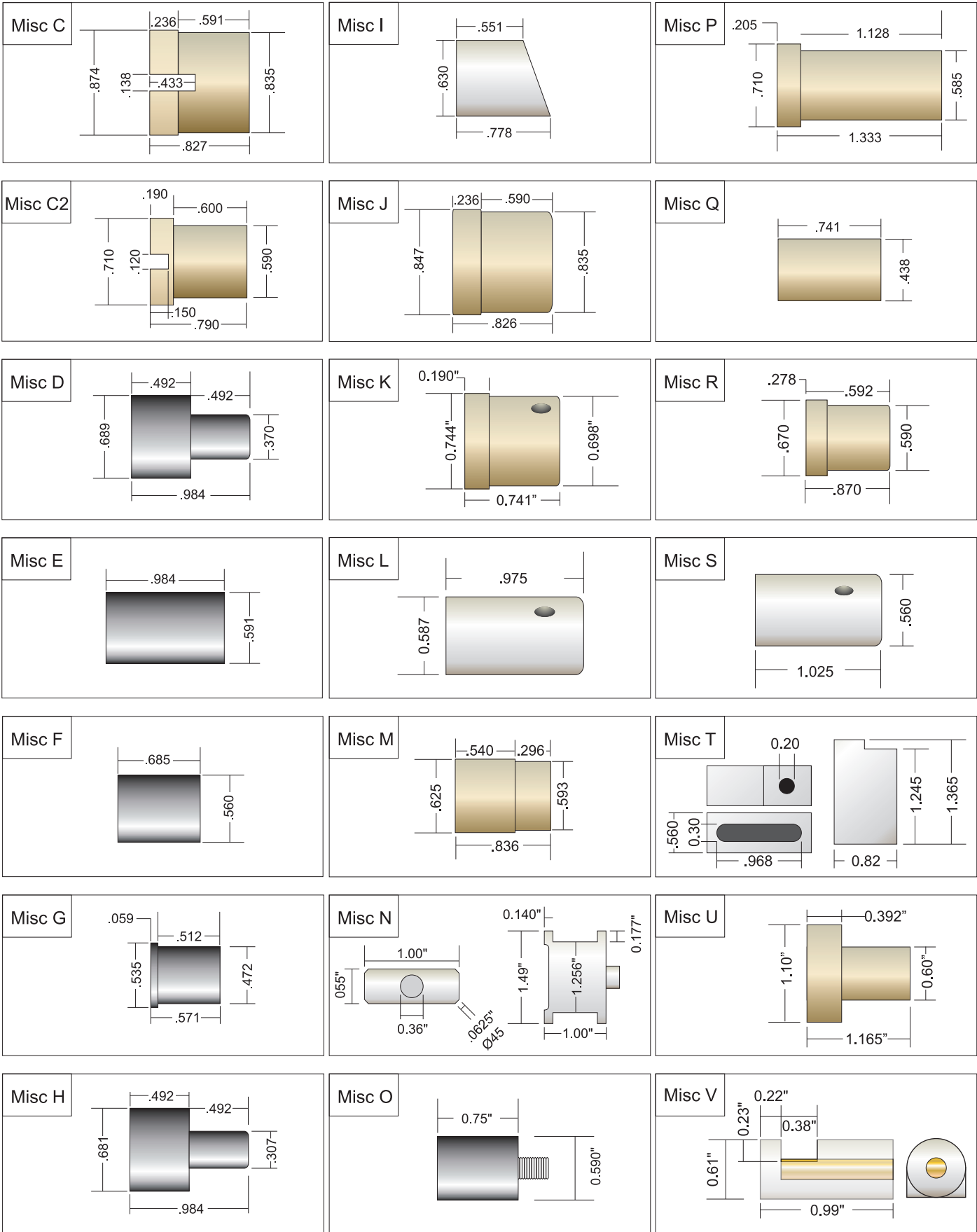
All you need to do is loosen the clamping bolts and the 2 - piece shutter separates enough for the liner to easily drop out.

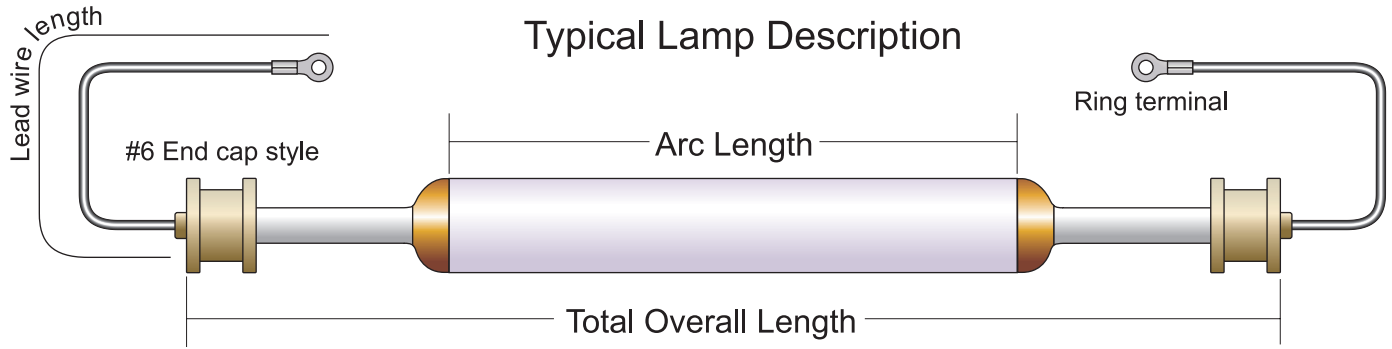
Another advantage of the clamping style shutter design is that the reflector liner is held tightly against the shutter extrusion for maximum heat transfer, resulting in longer reflector liner life.



Section 3







LEAD

All ceramic end cap styles and some metal end cap styles include a wire termination for lamp connection. The most common type are:

<p>Ring Terminal</p> #8 #10 #14	<p>Fork Terminal</p> #8 #10 #14	<p>Male Disconnect</p> <p>Female Disconnect</p>	<p>Ferrule</p> <p>Pin</p>
---------------------------------------	---------------------------------------	-------------------------------------------------	---------------------------

Please provide this information for first time orders along with the lead wire length. Once we have your information in our database, all subsequent orders for that particular lamp will be built to your specification automatically.



UV lamp connections are a common source of failures. The high voltage nature of UV components requires that any connector be tight and secure at all times. There should be no wiggle movement when using stake-on style connectors, any ring terminals should be solidly secure, and pin/ferrule type connections must be tightly secured. Any of the above connections should be checked periodically for looseness to prevent burning and arcing at the point of any connection.

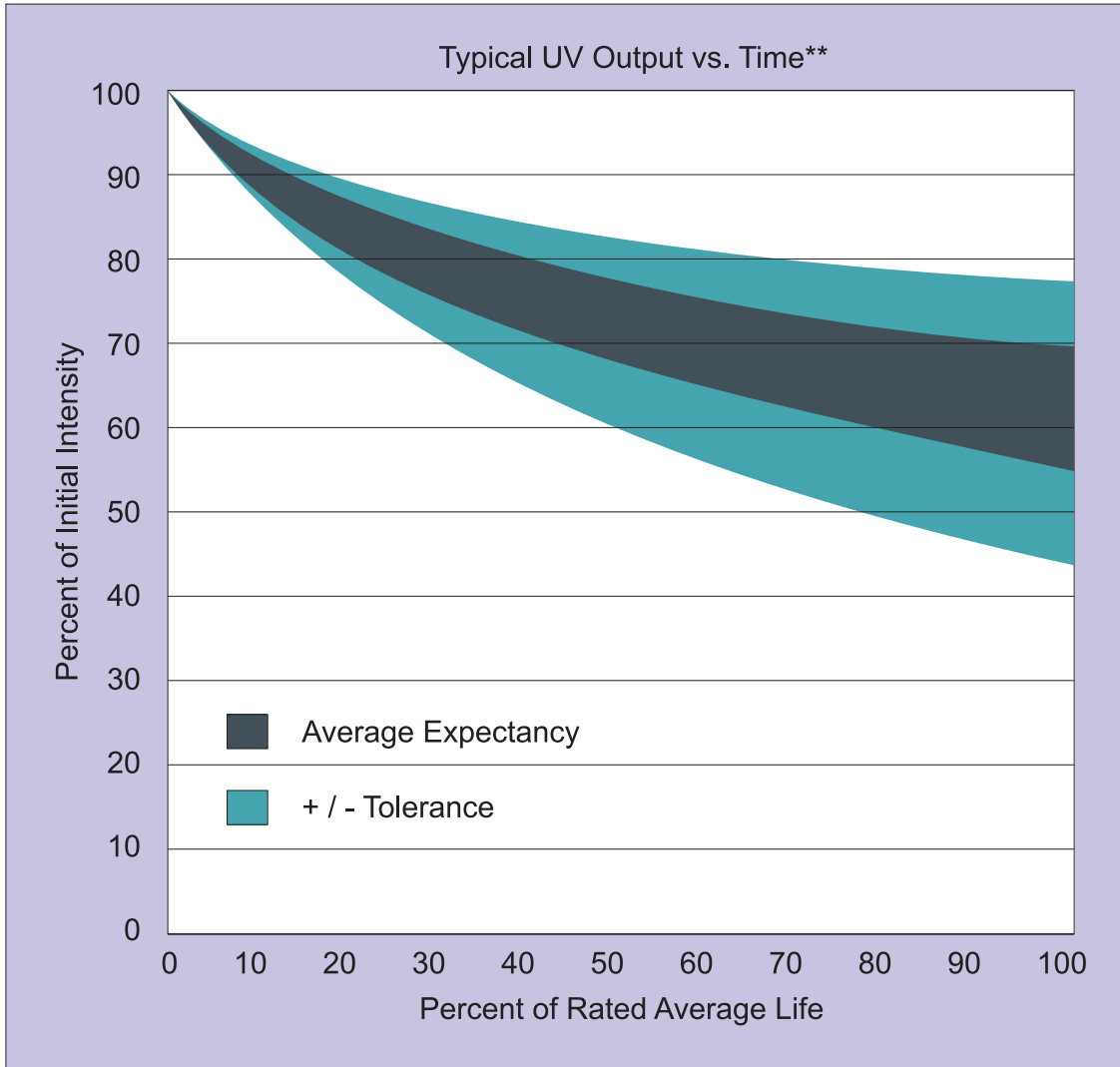




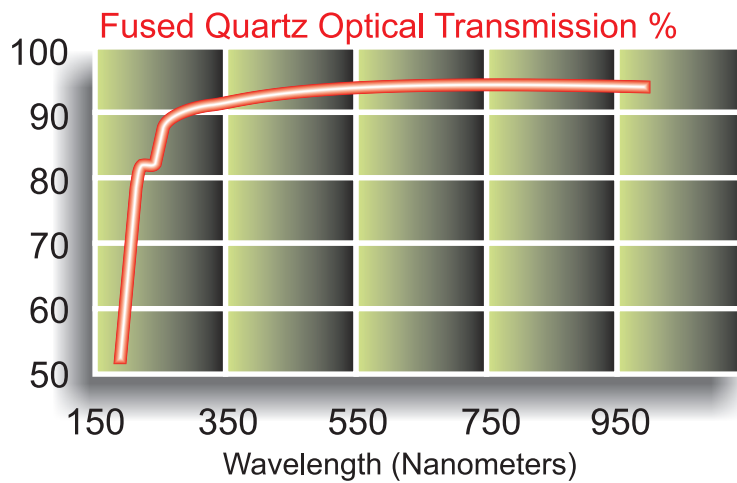
AETEK UV SYSTEMS							
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07-00938	07-01060	07-01114	07-01172	07-01236	07-01292	07-01456	07-01556
07-00940	07-01062	07-01116	07-01174	07-01238	07-01294	07-01458	07-01558
07-00942	07-01064	07-01118	07-01180	07-01244	07-01298	07-01460	07-01560
07-00944	07-01066	07-01120	07-01182	07-01246	07-01302	07-01462	07-01564
07-00956	07-01068	07-01122	07-01184	07-01246	07-01304	07-01480	
07-00962	07-01070	07-01126	07-01186	07-01248	07-01306	07-01486	
07-00968	07-01072	07-01128	07-01188	07-01250	07-01306	07-01488	
07-00976	07-01074	07-01130	07-01194	07-01256	07-01310	07-01490	
07-00986	07-01076	07-01132	07-01196	07-01258	07-01328	07-01492	
07-00990	07-01078	07-01134	07-01198	07-01260	07-01330	07-01526	
07-00994	07-01082	07-01138	07-01206	07-01262	07-01332	07-01530	
07-00998	07-01086	07-01142	07-01208	07-01264	07-01334	07-01532	
AMERICAN ULTRAVIOLET							
UVC005	A9441MCB	A94121MCB	A94181FCB	A94321FCB	A94501FCB	A97421FCB	
UVC020	A9441FCB	A94121FCB	A94201MCB	A94381MCB	A94551MCB	A94771MCB	
UVC035	A9461MCB	A94122MCB	A94201FCB	A94381FCB	A94551FCB	A94901MCB	
UVC105	A9461FCB	A94151MCB	A94251MCB	A94421MCB	A94601MCB	A94901FCB	
UVC145	A9481MCB	A94151FCB	A94251FCB	A94421FCB	A94601FCB		
UVC220	A9481FCB	A94171MCB	A94301MCB	A94481MCB	A94651MCB		
	A94111MCB	A94171FCB	A94301FCB	A94481FCB	A94651FCB		
	A94111FCB	A94181MCB	A94321MCB	A94501MCB	A94721MCB		
BREWER							
830S	840CL	940CL	1230CL	1260C			
830CL	930CL	1130USR	1230S				
CEFLA							
6254900003	6254800028	6254600053	6254600047	6254800031	6254600067	6254800020	
6254600042	6254900001	6254800027	6254600018	6254600040	6254800013	6254500043	
6254800021	6254600048	6254600038	6254600066	6254800041	6254800032	6254600044	
6254900005	6254900004	6254800017	6254800012	6254600024	6254600041	6254800022	
DUBOIS							
HA312/C		HA348/C		HA360/C		DUHM355/C-410	
HA522/C		HA225/C		HA372/C		DUHM360/C-410	
HA330/C		HA355/C		DUHM348/C-410			



ELTOSCH							
DL50117							
EYE							
HO3-L31		H04-L41		M06-L31		H144-L41	
M03-L31		M036-L31		M096-L41		M16-L41W	
GEW							
18242							
GIARDINA							
300MCX/DF/1		600MAX/TR		1400 MCX		1700MCX	
IST							
U200A		M300S1		AKX400		AKX700	
M200S2		M300U1		M500S1		T-1030-K2H	
M250-U2		M400U1		16COLG/HD		T-1030-K3H	
				1165			
KAMMANN							
KMSI717231565000		KMSI717231561000		KMS1300231501000			
ONLINE ENERGY							
01-0012-02		01-0015-02		01-1018-02		01-0024-02	
01-1012-02		01-0018-02		01-0021-02		01-0032-02	
						01-4042-02	
PRIME UV							
16-1-18-15-1.50		16-7-22-22-6-0		16-1-30-22-4-0		16-1-34-25-6-0	
16-1-21-22-4-0		16-7-22-28-6-0		16-1-30-25-6-0		16-7-34-28-6-0	
16-1-21-22-6-0		16-1-25-22-6-0		16-1-34-22-4-0		16-1-40-28-6-0	
PRIMARC							
PM2848		2H127		PL806			
SINGULUS							
200BTZ		31102531					
SPE							
P3024C		P3030C		P3038C		P3042C	
						P3048C	
						P3055C	
						P3060C	
						P3072C	
UV TECHNOLOGY							
UVT-2902-B3		UVT-7841-B3		3217B07		3217B16	
UVT-2941-B3		UVT-5103-B		3217B10		3218B16	
UVT-2901-B3		UVT-3407-B		3218B10		3219B18	
UVT-7831-B3		UVT-5123D		3219B10		3217B18	
						MA618	
						MA420	
						MA412	
						UVT4	
						MA615	
UV TECHNIK							
UVH 1022		UVH 3022		UVH 4222		UVH 5822/45	
UVH 1522		UVH 3522		UVH 5022/45		UVH 6722	
UVH 2022		UVH 3522/28		UVH 5322/45		UVH 7322	
UVH 2522		UVH 4122		UVH 5822		UVH 8322	
						UVH 10022	
						UVH 13022	
						UVH 19022	
						UVH 10522	
						UVH 14522	
						UVH 20022	
						UVH 11022	
						UVH 16522	
						UVH 22024	
						UVH 12522	
						UVH 17522	
VTI							
11Q02703		11J05501		11J02701		11H02702	
						11D04504	
						11D04201	



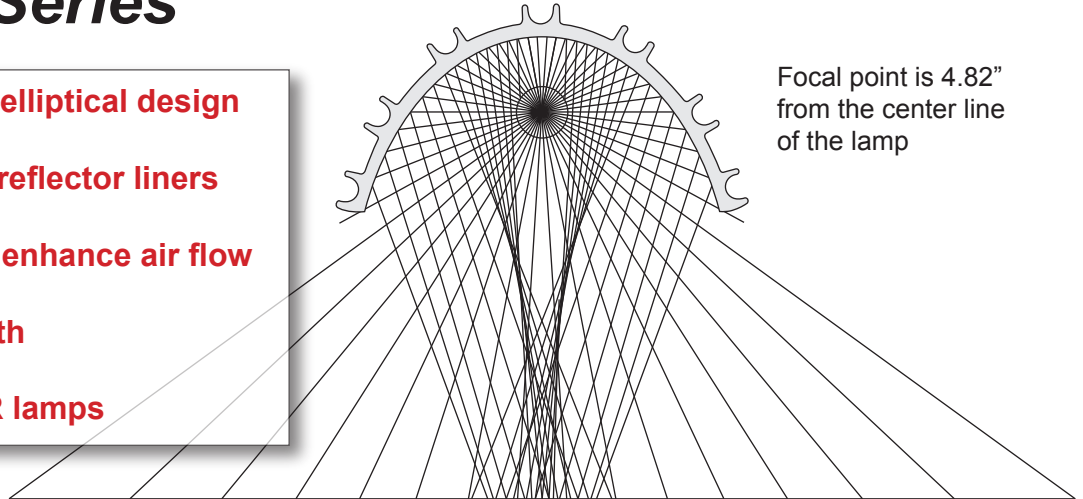
**** Actual results will vary according to field conditions and environment.**



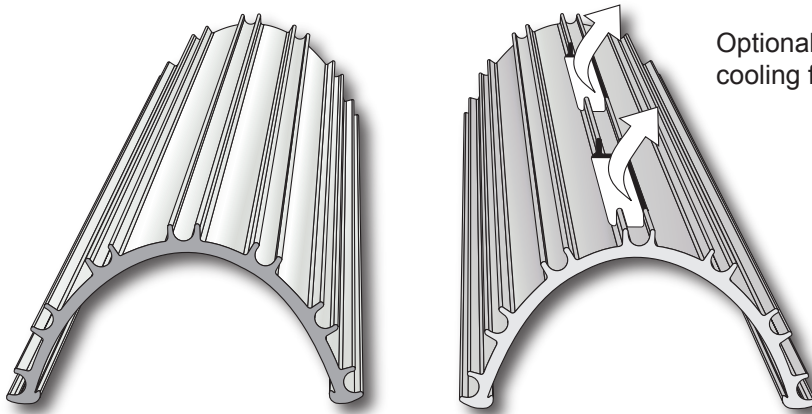


Milcure NS Series

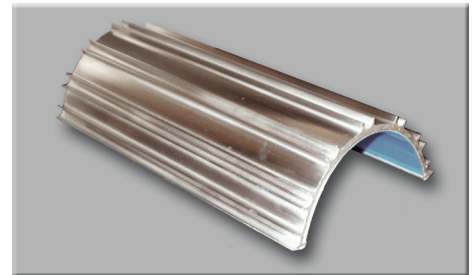
- High efficiency semi-elliptical design
- Replaceable slide-in reflector liners
- Slotted extrusion for enhance air flow
- Available in any length
- For use with UV or IR lamps



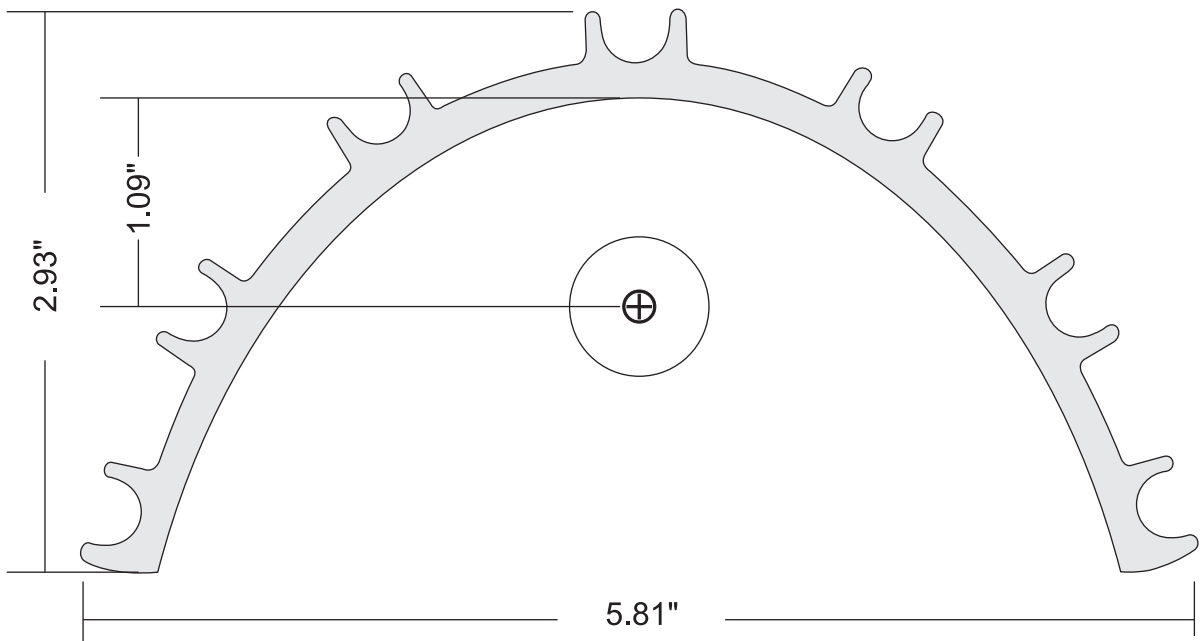
Focal point is 4.82" from the center line of the lamp



Optional slotted configuration provides enhanced cooling for improved lamp life and reduced heat



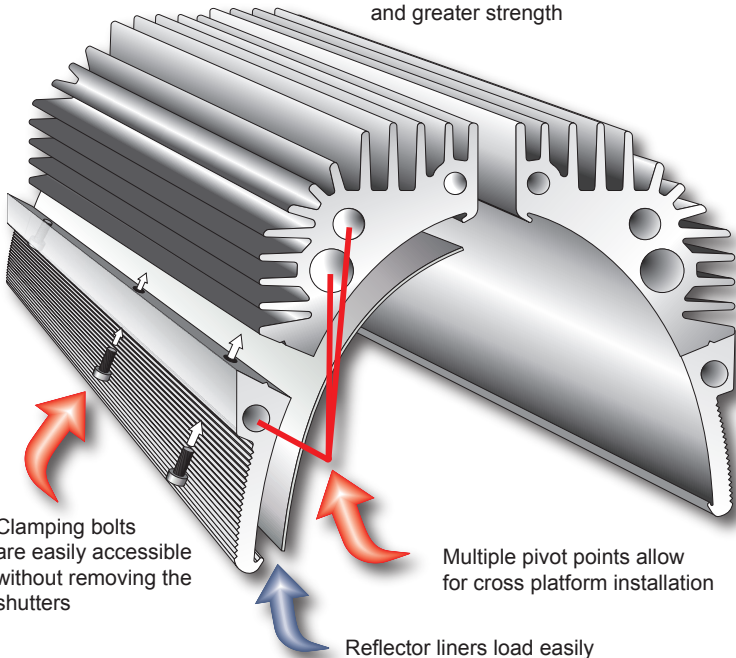
Miltec P/N	Type
020-00010	Standard
020-00030	Slotted



High efficiency finned design provides greater heat dissipation and greater strength

Milcure R Series

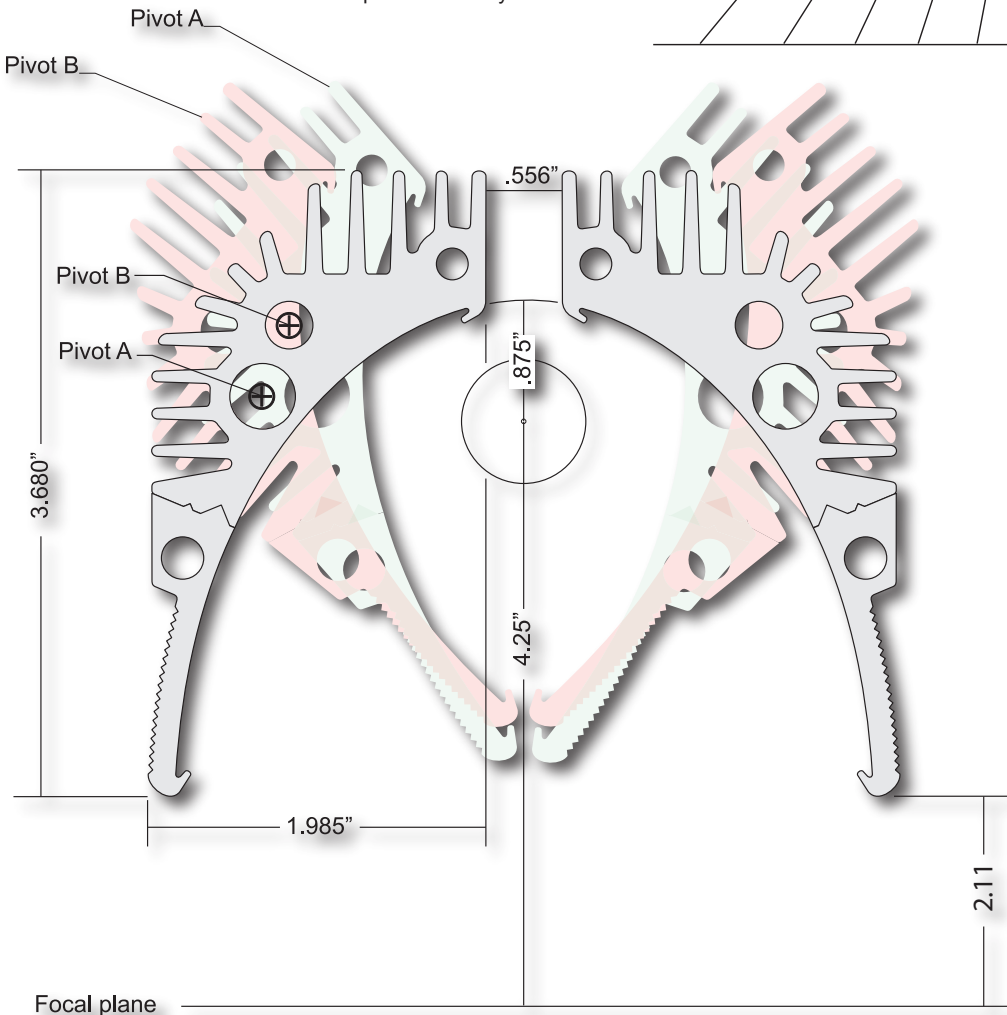
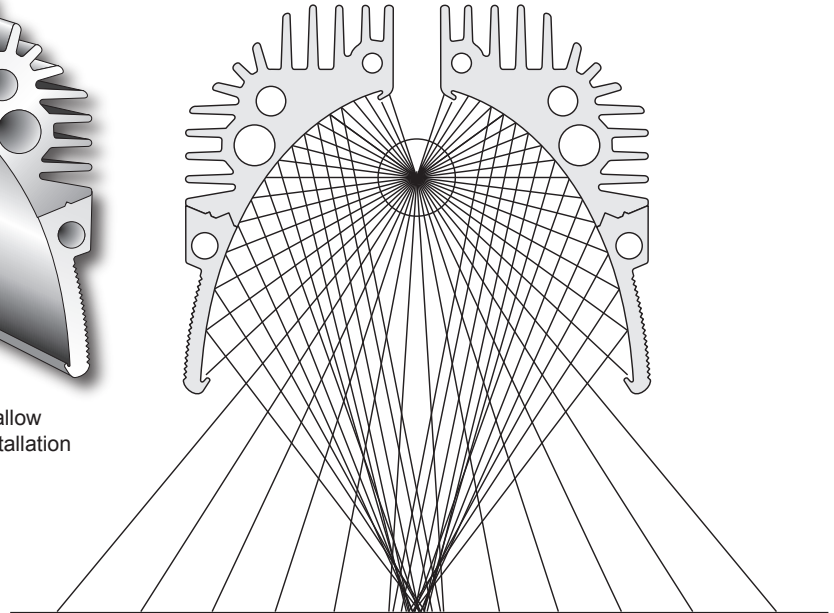
US Patent #6,720,566 B2



Clamping bolts are easily accessible without removing the shutters

Multiple pivot points allow for cross platform installation

Reflector liners load easily and are clamped down for a perfect fit every time



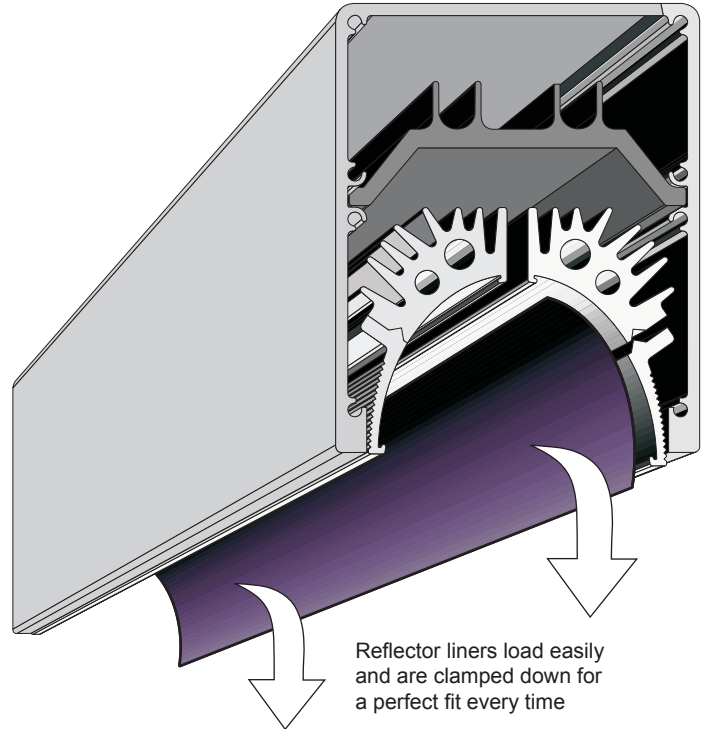
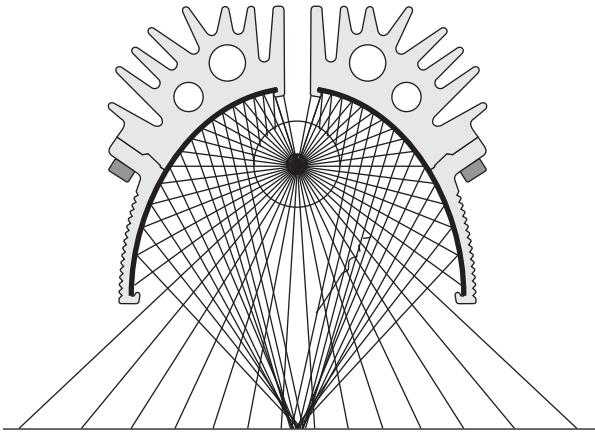
The unique patented Milcure "R" series reflector / shutter is capable of accepting both standard and dichroic reflector material. Since the reflector is a two piece clamping design, either reflector liner material is securely clamped into place tightly against the heat extrusion, allowing for efficient heat dissipation. This helps liner material last longer.

Our design also allows you to easily replace reflector liners without having to remove the shutters from the lamp housing.



US Patent #6,720,566 B2

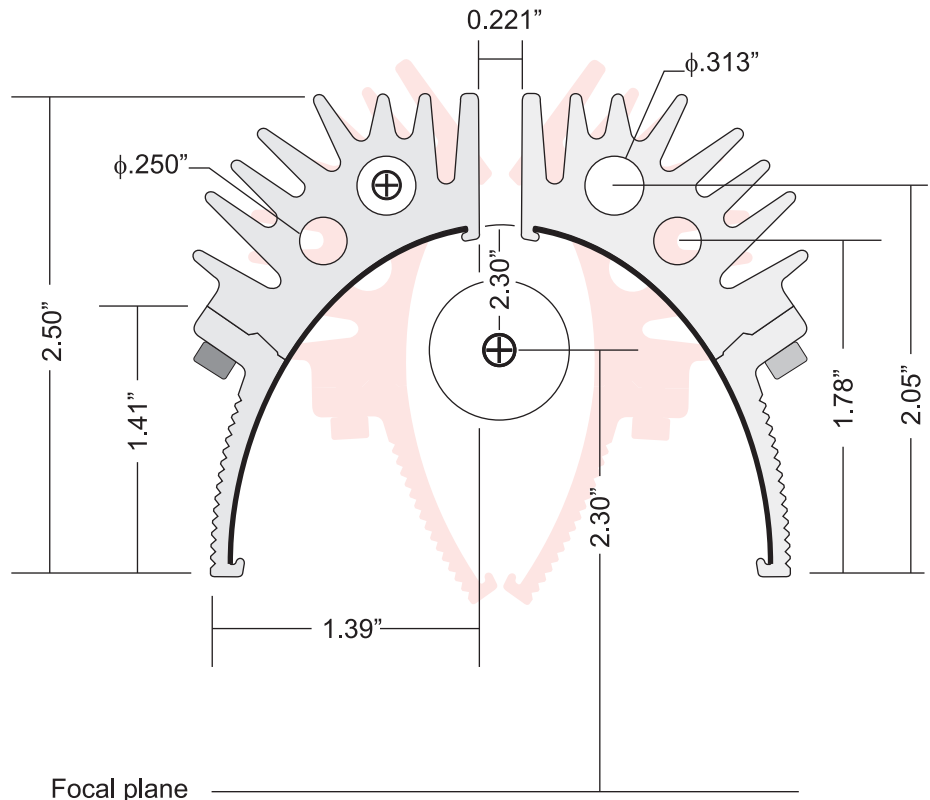
Milcure RPK Series



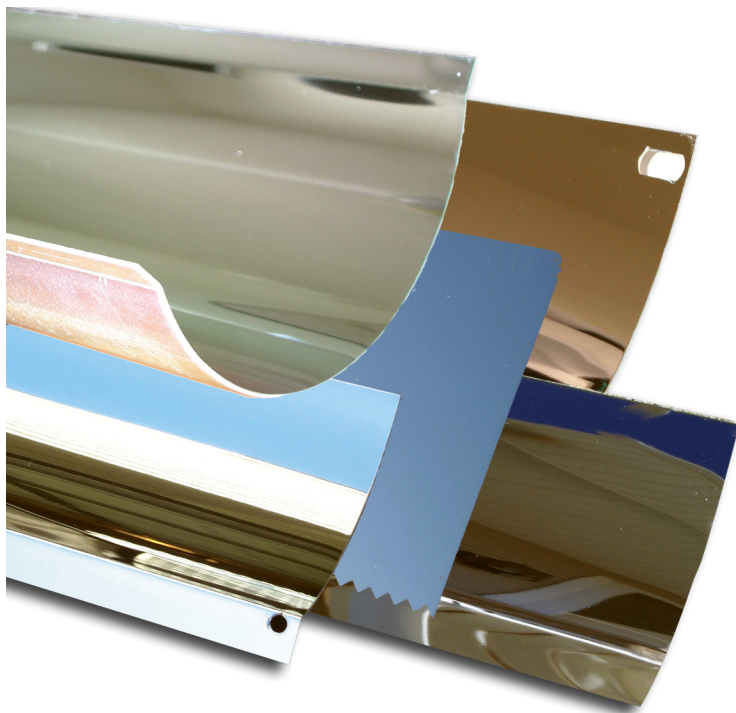
Reflector liners load easily and are clamped down for a perfect fit every time

- For users of Aetek UVPak™, UltraPak™ and original design UV systems
- Direct shutter replacement, no modifications needed
- Your choice of Milcure 1000 series reflector liner or Milcure D series dichroic reflector liner
- High grade, high efficiency aluminum heat sink extrusion
- Perfect reflector liner fit for maximum heat transfer
- Unique patented design for easy maintenance

The unique patented Milcure "RPK" series reflector / shutter is capable of accepting both standard and dichroic reflector material. For those using OEM dichroic coated shutters, our design eliminates the need for replacing the entire shutter extrusion due to poorly processed dichroic coating flaking off or due ink and substrate contamination. Our design also allows you to easily replace reflector liners without having to remove the shutters from the lamp housing.



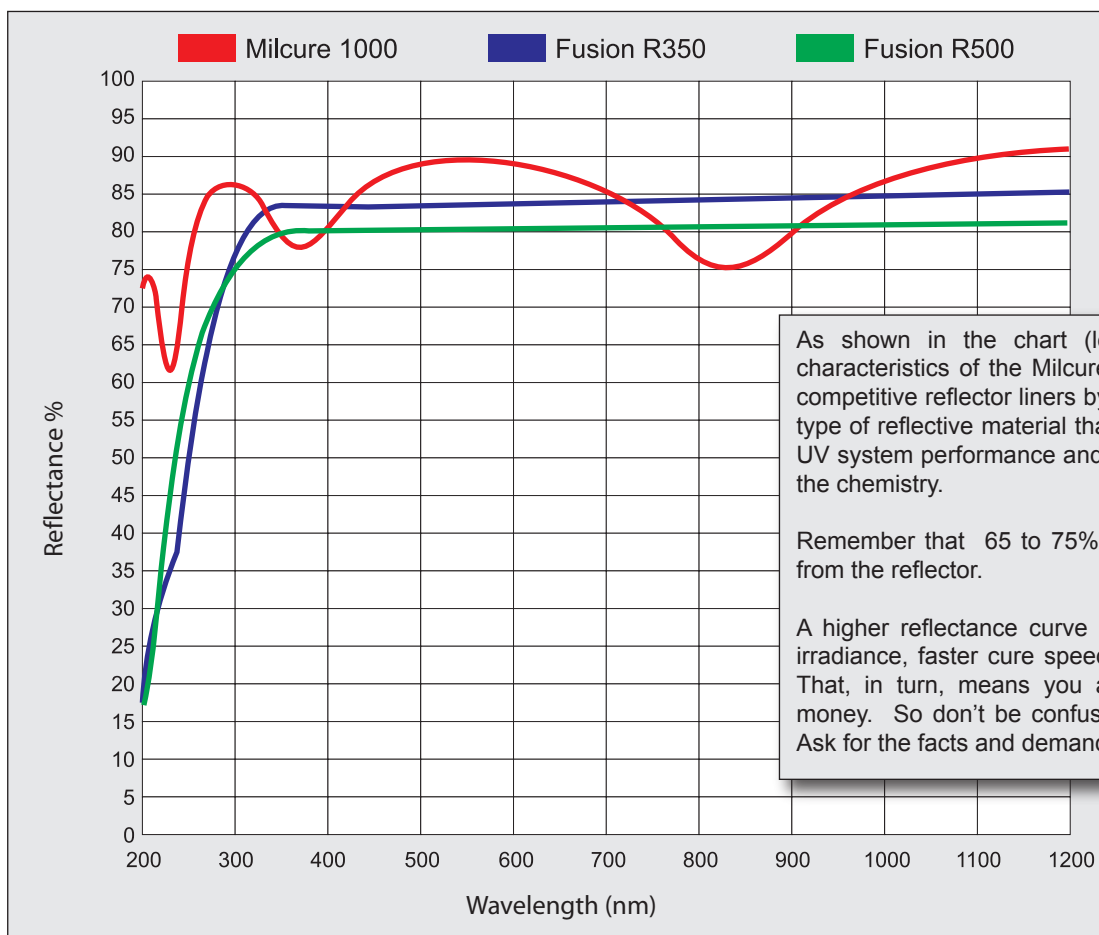
Milcure 1000



Quantity	Dimensions	Miltec P/N
Single Sheet	.012" 24.4" x 48"	020-00110
Case (3 sheets)	.012" 24.4" x 48"	020-00120
Single Sheet	24" x 32"	020-00130
Case (3 sheets)	.020" 24" x 32"	020-00140
Single Sheet	.020" 24" x 48"	020-00150
Case (3 sheets)	24" x 48"	020-00155
Single Sheet	24.4" x 36"	020-00205
Case (3 sheets)	.030" 24.4" x 36"	020-00208
Single Sheet	.030" 72" x 49"	020-00230
Case (3 sheets)	72" x 49"	020-00240

Custom curved, cut and drilled reflector liners are available from our in-house metal shop.

MILCURE 1000 REFLECTANCE CURVE



As shown in the chart (left), the high reflectance characteristics of the Milcure 1000 material surpasses competitive reflector liners by a significant margin. The type of reflective material that you use is critical to the UV system performance and desired cure properties of the chemistry.

Remember that 65 to 75% of your UV output comes from the reflector.

A higher reflectance curve results in higher UV peak irradiance, faster cure speeds and better overall cure. That, in turn, means you are getting more for your money. So don't be confused by "lower price" offers. Ask for the facts and demand the best performance!

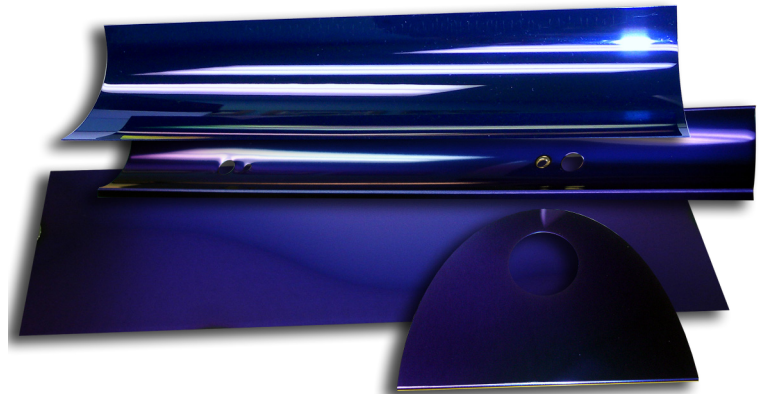
Milcure MD

Milcure MD dichroic coated reflectors offer a superior IR attenuation while at the same time increases UV output in the UVA, UVB and UVC ranges.

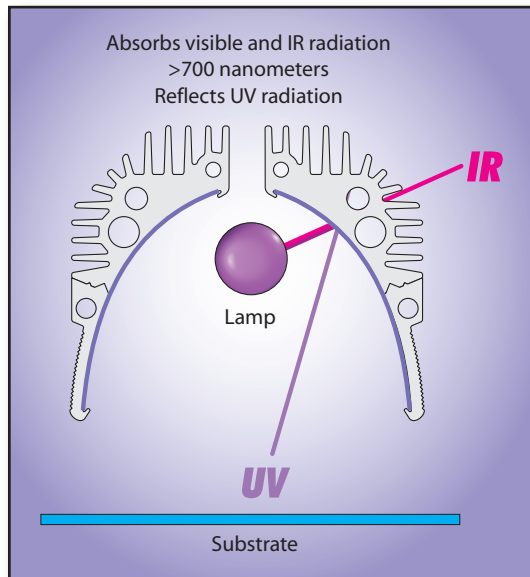
This high grade Dichroic coating is designed to provide maximum reflectance between 220 and 380 nanometers and significantly reduce heat via the absorption or transmission of visible or infrared energy.

The dichroic coating is extremely durable and is typically applied to reflectors used in UV curing equipment employing high power mercury lamps. This coating is very hard and can be cleaned repeatedly.

Miltec stocks dichroic material, eliminating long delivery times, and can custom cut, drill, form and bend to your specifications. Our in-house machine shop offers a quick turnaround of your order.

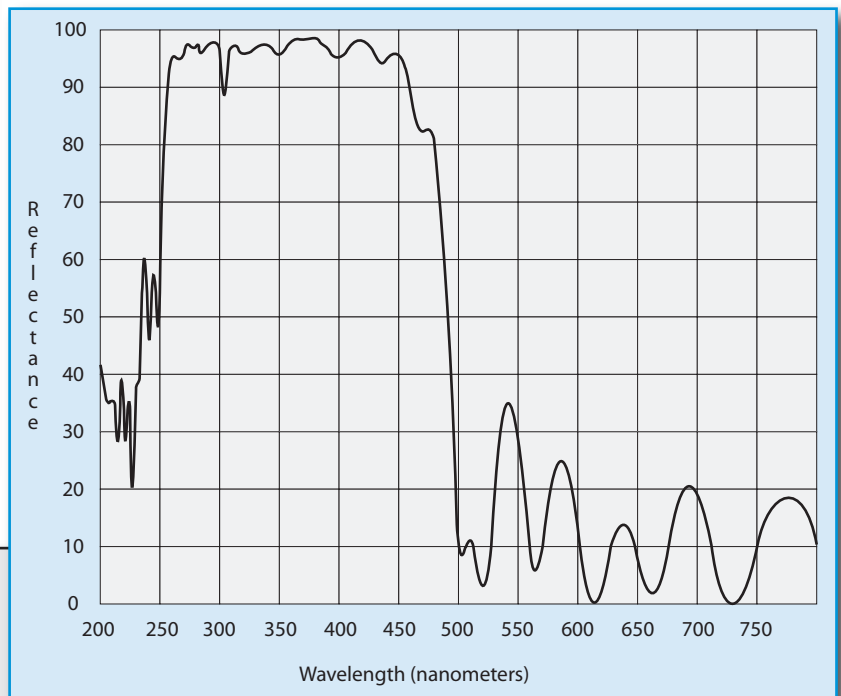


16" x 16" x .020 Flat Sheet

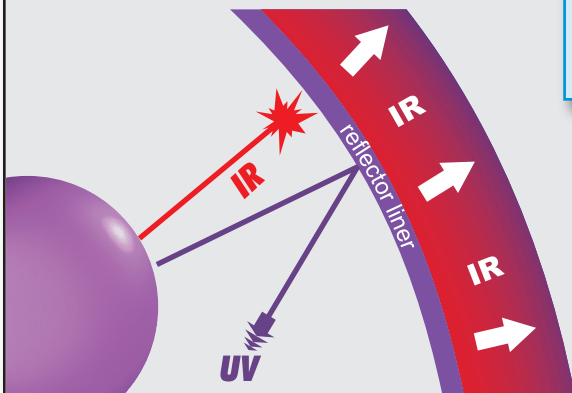


Milcure MD Performance Graph

Miltec P/N
020-02800



How it Works

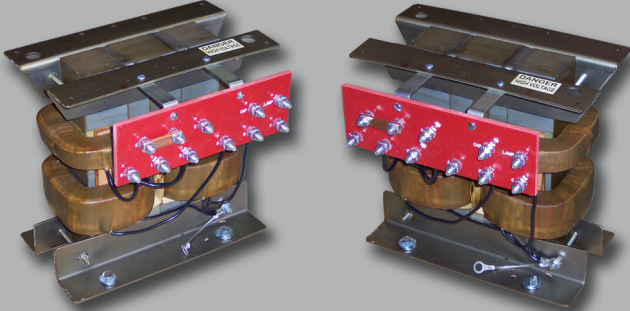
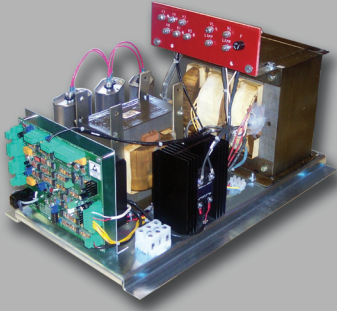


Infrared radiation is absorbed into the Dichroic liner and transferred into the heat sink material of the reflector extrusion to be cooled by the UV system exhaust blowers. The result is less heat on the substrate.

UV Applications:

- Plastic containers
- Automotive components
- Unsupported film (labelmaking)
- Heat sensitive substrates
- Processes requiring higher peak intensity in UVA, UVB and UVC

Ballasts

Standard Constant Wattage Ballasts	Variable Power Ballasts
	
<p>Miltec supplies industry standard reliable ballasts for your UV system. We can match your lamp specification or provide you with a matched lamp / ballast combination. Ballasts can be constructed to operate metal additive type lamps or standard mercury. Matched capacitors are included with each ballast purchase to ensure efficient operation of your UV system. Call for pricing.</p>	<p>For more precise lamp output control, Miltec offers the Controlled Ferroresonant Ballast. This ballast is a variable output device, giving you the flexibility to adjust more exact UV outputs to your product. This ballast provides 30% more efficiency than standard ballasts and can inherently operate standard mercury, gallium additive and iron additive lamps. The integrated control board is PLC compatible.</p>

Capacitors

	<p>Miltec supplies a wide variety of high voltage capacitors used in UV power supplies and other high power applications.</p>
-------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------

μ F	Volts	Miltec P/N	μ F	Volts	Miltec P/N	μ F	Volts	Miltec P/N	μ F	Volts	Miltec P/N
0.10@950		012-21249	1.20@1800		012-21650	2.00@3500		012-22500	3.00@3000		012-22460
0.10@1000		012-21250	1.20@2500		012-21950	2.00@4000		012-22825	3.15@1750		012-21600
0.13@4000		012-22600	1.40@3000		012-22350	2.40@2500		012-22450	3.60@1000		012-21300
0.45@4000		012-22700	1.50@1600		012-21500	2.40@3000		012-22450	4.00@660		012-20650
0.60@4000		012-22550	1.50@3000		012-22370	2.40@4000		012-22850	5.00@660		012-20700
0.75@2500		012-21800	1.65@2100		012-21750	2.5@660		012-22125	5.75@1500		012-21450
0.80@3000		012-22270	1.66@2500		012-22000	2.75@3000		TBD	6.00@660		012-20750
0.85@4000		012-22650	1.75@3000		012-22400	2.80@1800		012-21700	6.00@1600		012-21550
0.90@3000		012-22300	1.75@3500		012-22490	2.80@2500		012-22150	6.00@2500		012-22220
1.00@2500		012-21850	1.80@4000		012-22800	3.00@660		012-20600	7.00@660		012-20800
1.00@3000		012-22320	1.90@3500		012-22499	3.00@1000		012-21280	8.00@660		012-20850
1.00@4000		012-22750	2.00@2500		012-22050	3.00@2250		012-21775	8.00@1500		012-21455
1.05@2500		012-21950	2.00@3000		012-22425	3.00@2500		012-22200	10.0@660		012-20900
Other values available											

High Voltage Components





Miltec P/N 010-00050	Miltec P/N 010-00040	Miltec P/N 010-00030	Miltec P/N 010-00020
Mercury Contactor, N.O.	Mercury Contactor, N.C.	Mercury Contactor, N.O.	Mercury Contactor
Single Pole, 120 vac coil	Single Pole, 120 vac coil	Two Pole, 120 vac coil	Single pole, 24vdc coil





Miltec P/N 010-00015	Miltec P/N 010-00060	Miltec P/N 010-00242	Miltec P/N 010-00260
Mercury Contactor, N.O.	Mercury Contactor, N.O.	Current Transformer	Potential Transformer
Single pole, 24vdc coil	Single Pole, 48 vac coil	50:5 turns ratio	100:1 step down signal

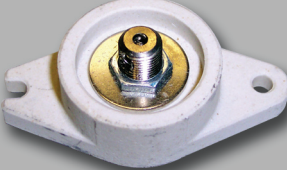

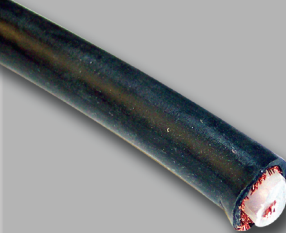
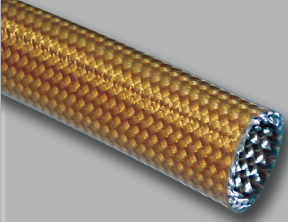
	Description	Range	Miltec P/N
	Volt Panel Meter, 2.5" display	0-25 (0-2500V range)	010-00216
	Volt Panel Meter, 2.5" display	0-50 (0-5000V range)	010-00218
	Volt Panel Meter, 3.5" display	0-25 (0-2500V range)	010-00220
	Volt Panel Meter, 3.5" display	0-50 (0-5000V range)	010-00222
Used with Potential Transformer, P/N 010-00260			

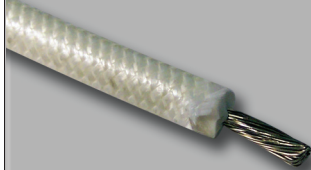
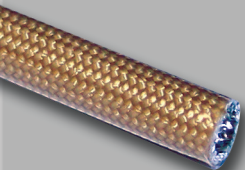
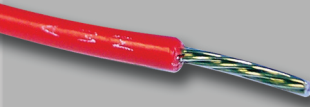
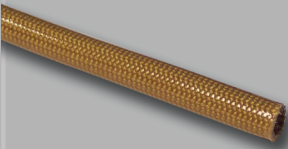
	Description	Range	Miltec P/N
	Amp Panel Meter, 2.5" display	0-1.5 (0-15 amp range)	010-00210
	Amp Panel Meter, 2.5" display	0-3 (0-30 amp range)	010-00212
	Amp Panel Meter, 3.5" display	0-1.5 (0-15 amp range)	010-00200
	Amp Panel Meter, 3.5" display	0-3 (0-30 amp range)	010-00206
Used with Current Transformer, P/N 010-00242			

Ceramic Standoffs and Wire

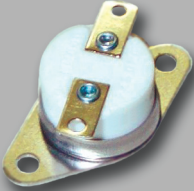

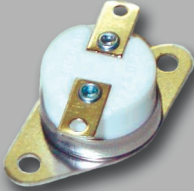
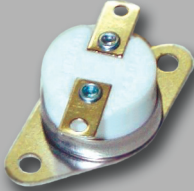
Miltec P/N 010-00100	Miltec P/N 355-02000	Miltec P/N 590-00500	Miltec P/N 590-00505
Ceramic Standoff	Ceramic Standoff	Ceramic Standoff	Ceramic Standoff
			
Clamp style for metal end lamps	Barrel, 1.25 x .75"	Barrel, 1 x .75"	Barrel, 1 x 0.5"




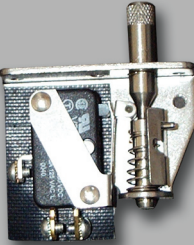
Miltec P/N 220-260050	Miltec P/N 010-00710	Miltec P/N 220-23060	Miltec P/N 530-05400
Ceramic Standoff	Ceramic Standoff	Ceramic Standoff	Ceramic Standoff
			
Barrel, 0.5 x 0.385"	Cone, 1"	Cone, 0.625"	Bulkhead, 1.25 x .75"


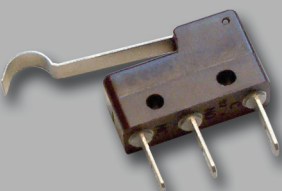

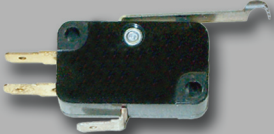
Miltec P/N 010-00110	Miltec P/N 010-00114	Miltec P/N 010-00390	Miltec P/N 010-00330
Ceramic Standoff	Ceramic Standoff	High Voltage Cable	High Temp Slewing
			
Spring tension side A	Spring tension side B	Shielded, 13 gauge, 25kvdc	.438" I.D., fits HV Cable

Miltec P/N 010-00370	Miltec P/N 010-00300	Miltec P/N 010-00380	Miltec P/N 010-00310
High Voltage Wire	High Temp Slewing	Low Voltage Wire, 18G	High Temp Slewing
			
High Temp, 200°C, 25Kvdc	.258-.278" I.D., fits HV Wire	High Temp, 200°C, Teflon	.144 - .158" I.D., fits LV Wire

Control Switches

Miltec P/N 530-05560	Miltec P/N 220-00146	Miltec P/N 510-06500	Miltec P/N 220-00148
Thermal Switch, 150°F	Thermal Switch, 190°F	Thermal Switch, 220°F	Thermal Switch, 300°F
			
1/2" disc, open on rise	3/4" disc, open on rise	1/2" disc, open on rise	1/2" disc, open on rise

Miltec P/N 220-00140	Miltec P/N 590-06540	Miltec P/N 590-06580	Miltec P/N 220-00190
Thermal Switch, 350°F	Thermal Switch, 400°F	Thermal Switch, 550°F	Limit Switch, Metal
			
3/4" disc, open on rise	1/2" disc, open on rise	1/2" disc, open on rise	Locking service panel plunger

Miltec P/N 220-00150	Miltec P/N 220-00155	Miltec P/N 220-00180	Miltec P/N 530-05600
Limit Switch, Micro	Limit Switch, Sub-Mini	Limit Switch, Micro	Limit Switch, Micro
			
Short arm roller	Long curved arm	Long arm roller	Long curved arm

Other control switches are available
Call us with your electrical requirements

Chassis, Plug and Socket

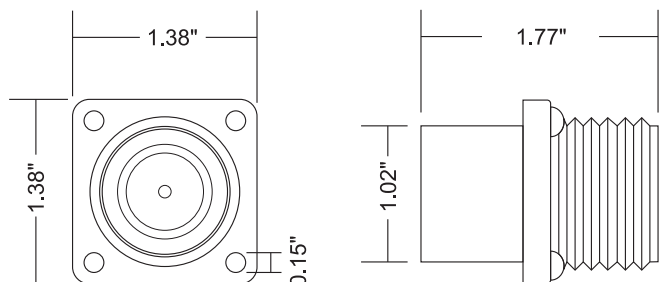
Miltec P/N 220-40740	Miltec P/N 530-05900	Miltec P/N 220-40780	Miltec P/N 510-05010
Chassis, 1 pin, male	Chassis, 5 pin, male	Chassis, 6 pin, male	Chassis, 10 pin, male
High Voltage	Low Voltage	Low Voltage	Low Voltage

Miltec P/N 220-40810	Miltec P/N 530-05950	Miltec P/N 530-05960	Miltec P/N 220-40830
Plug, 1 pin, female	Plug, 5 pin, female	Plug, 5 pin, male	Plug, 6 pin, female
High Voltage, straight	Low Voltage, straight	Low Voltage, straight	Low Voltage, straight

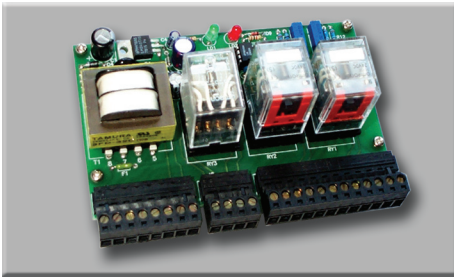
Miltec P/N 220-40800	Miltec P/N 510-05050	Miltec P/N 220-40850	Miltec P/N 220-40870
Plug, 1 pin, male	Plug, 10 pin, female	Plug, 1 pin, female	Plug, 6 pin, female
High Voltage, straight	Low Voltage, straight	High Voltage, 90°	Low Voltage, 90°

Miltec P/N 220-40833	Miltec P/N 220-40885
Plug, 6 pin, male	Boot and Clamp Assy.
Low Voltage, straight	Fits all plugs

Other configurations are available



Voltage Monitor Board



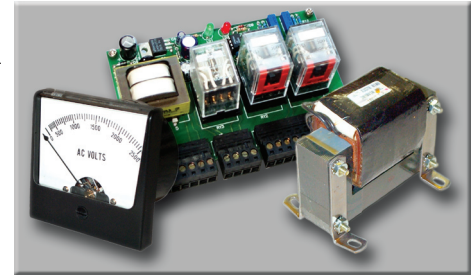
Miltec P/N 220-00114

The lamp voltage sensing board accepts a 0-30vac signal. The comparator circuit is User settable, which allows you use any size lamp. The board has an integrated "Lamp Ready" relay which triggers when the lamp voltage matched the User setting, and also has an integrated "Lamp Fail" relay which triggers when the lamp is in an "open circuit" state (lamp out). The board requires a 120vac source and is designed to operate with a 100"1 potential transformer (010-00260).

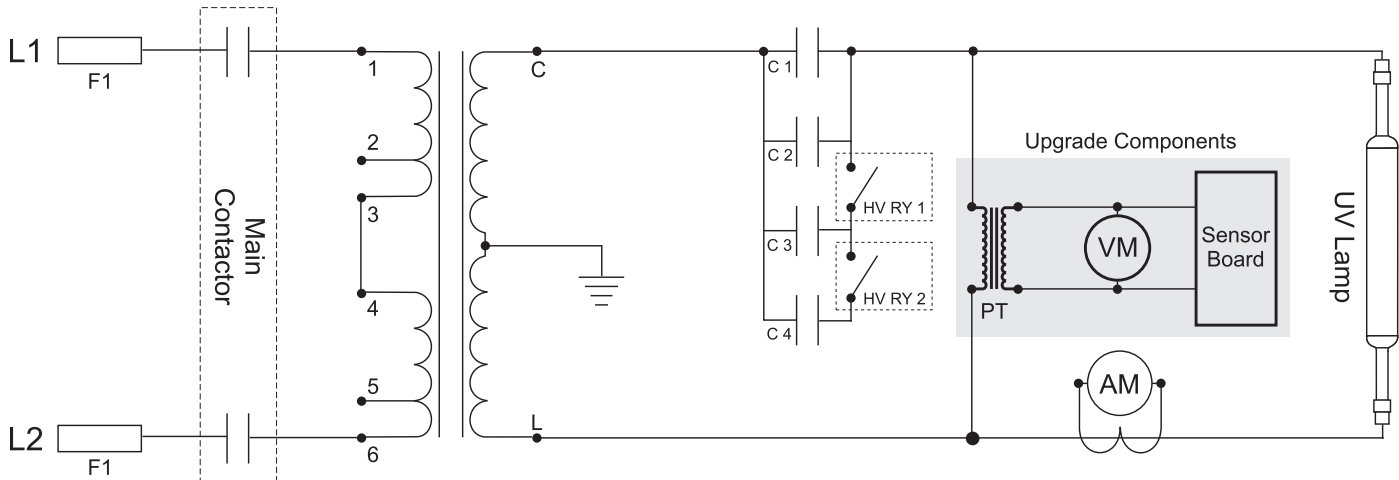
Voltage Monitor Board Kit

Miltec P/N 010-00175

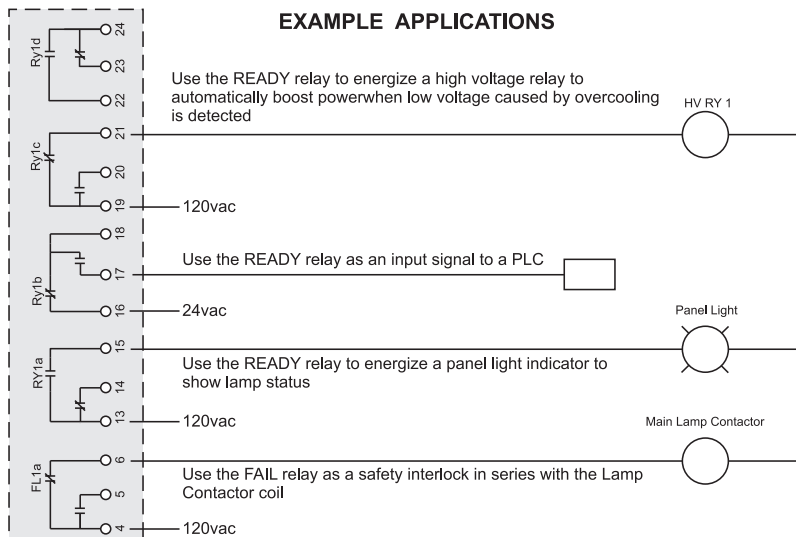
The voltage monitor kit includes the voltage sensing board (220-00114), the supporting potential transformer (010-00260) signal source and a 0-2500vac face panel voltmeter (010-00220) for a complete retrofit package. This is everything you need to monitor your UV lamp and integrate with your existing control logic if you wish.



COMMON POWER SUPPLY SCHEME



EXAMPLE APPLICATIONS



The sensor board utilizes a 4 pole, form C, "ready relay" and a 2 pole, form C, "fail relay" which can be integrated for use with discrete wire logic or PLC input cards.

The "lamp ready" signal is typically used to show the status of the lamp voltage when it reaches its nominal operating voltage. Conversely, when a lamp fails to conduct current (open circuit), due to the lamp being too hot to start or actually being burnt out, the "lamp fail" circuit triggers, which can then be integrated to a warning light, lamp contactor disabling or PLC software logic.

This device is perfect for detecting lamp overcooling, as excessive air flow is directly related to decreased lamp voltage.

Milcure HPI™ UV Systems



Conveyor Lamp System

- Arc lamps lengths (6" – 110"), longer lengths available
- Choice of 300, 450 and 625 watts per inch. Custom lamp wattages up to 1200 wpi on certain lamp sizes
- Multi-lamp base-plate configurations (single, dual, or more), nitrogen inerting capability.
- Option for pneumatic lift system hinged in rear or option for focus adjustment lift system (Note that both of these pneumatic features will not be offered on the same system because it becomes too complicated and too expensive and both are not needed at the same time. If you have the focus adjustment lift system, the hinged lift system will not be necessary.
- Choice of mercury, gallium additive, iron additive, lead additive or ozone-free lamp types.
- Choice of shuttered or non-shuttered reflector system.
- Milcure MD dichroic reflector liners included, optional choice of Milcure 1000 standard reflector liner.
- Optional hot mirror quartz or standard quartz plate, the lamp structure is designed to accept up to 3 layers of quartz plates without after-purchase modifications.
- Tri-power Constant Wattage or optional variable power supply. Custom power levels available

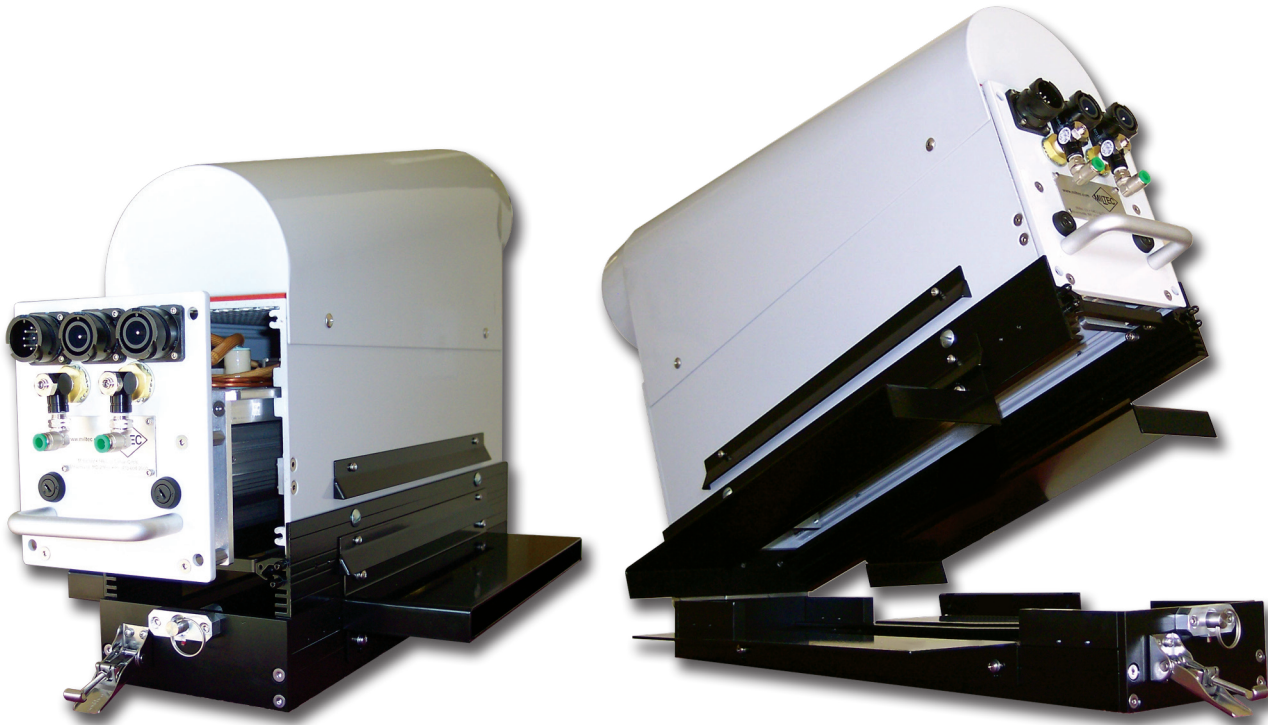
Standard UV configuration

- Lamp module (including lamp and dichroic reflector liners).
- Conveyor style base plate.
- NEMA rated power supply enclosure, PLC logic and color touch screen operator station.
- 20 ft. direct cable connections, 35 ft. and 50 ft. also available. Longer runs require local junction boxes.
- Individual, direct drive, lamp exhaust blower/motor for each lamp, controlled by an individual USER programmable variable frequency drive (VFD) for each lamp.
- 8ft. length of high temperature UV resistant flexible exhaust hose for each lamp.
- Integrated USER interface accepts 0-10vdc or 3 dry contacts for shutter activation and automatic power level control.
- Operator manual, troubleshooting guide and mechanical/electrical drawings.

Conveyor features

- Speed available up to 500 FPM
- Digital speed readout, belt break safety interlock and E-stop.
- Crowned pulleys, adjustable idler.
- Miltec MC 300 Teflon coated fiberglass mesh belt.
- Aluminum support rollers
- 120 VAC power

Milcure HPI™ UV Systems



Web Base Lamp System

- Arc lamps lengths (6" – 110"), longer lengths available
- Choice of 300, 450 and 625 watts per inch. Custom lamp wattages up to 1200 wpi on certain lamp sizes
- Multi-lamp base-plate configurations (single, dual, or more), nitrogen inerting capability.
- End or top exhaust plenum styles, operator side or gear side orientation.
- Choice of mercury, gallium additive, iron additive, lead additive or ozone-free lamp types.
- Shuttered reflector system.
- Milcure MD dichroic reflector liners included, optional choice of Milcure 1000 standard reflector liner.
- Optional hot mirror quartz or standard quartz plate, the lamp structure is designed to accept up to 3 layers of quartz plates without after-purchase modifications.
- Tri-power Constant Wattage or optional variable power supply. Custom power levels available

Standard UV configuration

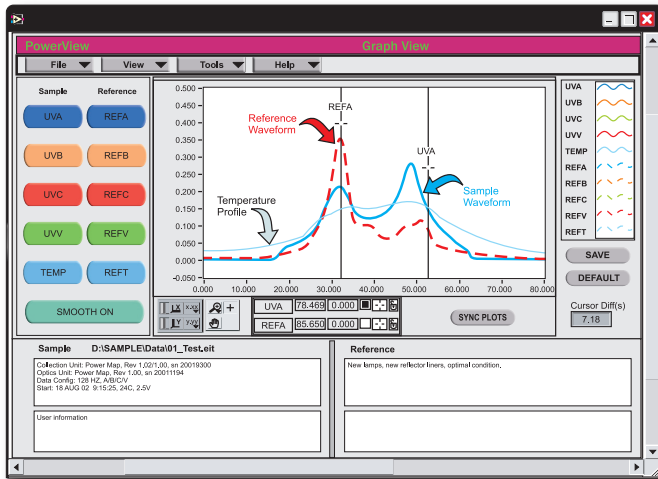
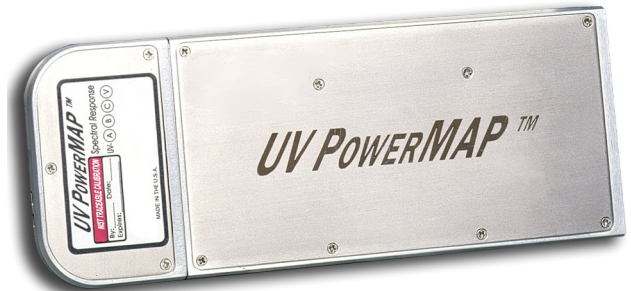
- Lamp module (including lamp and dichroic reflector liners).
- Enclosed web style base plate.
- NEMA rated power supply enclosure, PLC logic and color touch screen operator station.
- 20 ft. direct cable connections, 35 ft. and 50 ft. also available. Longer runs require local junction boxes.
- Individual, direct drive, lamp exhaust blower/motor for each lamp, controlled by an individual USER program mable variable frequency drive (VFD) for each lamp.
- 8ft. length of high temperature UV resistant flexible exhaust hose for each lamp.
- Integrated USER interface accepts 0-10vdc or 3 dry contacts for shutter activation and automatic power level control.
- Operator manual, troubleshooting guide and mechanical/electrical drawings.



UV Diagnostic and troubleshooting tool

Model	Miltec P/N
UV PowerMAP	050-60545
UV MAP Plus	050-60590

- The perfect tool for analyzing multi-lamp systems during production with a single pass
- Reduce troubleshooting time from hours to minutes, reduce costly downtime
- View and compare two sample readings together, PowerView calculates the difference
- Increase your process control, reduce product waste, save money
- Easily share data files between facilities via e-mail



Total Energy Density (cm2)	Sample	Reference	Diff.	% Diff.
UVA	256.11	228.37	27.74	16.1
UVB	216.71	201.69	15.02	7.4
UVC	35.045	32.098	2.947	9.2
UVV	206.14	151.58	54.558	36.0

UV PowerMAP and UV MAP Plus Features

- UV PowerMAP® - measures peak irradiance and total energy density in four spectral regions: UVA, UVB, UVC, and UVV
- UV MAP Plus™ - measures the peak irradiance and total energy density for any one channel
- Collection and storage of up to 1 million data points for accurate UV and temperature mapping in your system
- Collected data displayed in graphical and tabular forms in the PowerView™ software package
- Ultra-fast, user adjustable sampling rate - up to 2048 samples/second ensures high resolution even at high speeds
- Detachable Optics Head - allows the use of different optics heads with the Data Collection Unit to minimize downtime during re-calibration
- Offset optics for easy measurement at conveyor edge
- Type J thermocouple records temperatures from 0-500°C
- Low, narrow profile to allow access to most curing applications
- Rugged aluminum chassis and stainless steel case, PC communications cable included

Technical Specifications

Configuration:	2 part: Detachable Optics Head and Data Collection Unit (DCU) Optics Head: Supports optics to measure 1 spectral region (UV MAP Plus or 4 spectral regions (UV PowerMAP) DCU: 256 bytes non-volatile memory.
Choose:	High Power: UVA, B, V - 200mW to 20W; UVC - 20mW/cm2 to 2W/cm2 Low Power: UVA, B, V - 2mW to 200mW; UVC - 1mW/cm2 to 100mW/cm2.
Spectral Response:	UVA (320-390nm), UVB (280-320nm), UVC (250-260nm), UVV (395-445nm).
UV Accuracy:	+/-5% typical, +/- 10% maximum
Temp. Measurement:	Type J; Input Range: 500°C Maximum (Thermocouple range determined by thermocouple wire used. 250°C thermocouple wire supplied with unit); Sample rate: 32 samples per second.
UV Sample Rates:	User-adjustable from 128 to 2048 samples per second.
UV Sample Period:	Maximum of 1 hour, determined by configuration.
Over-temp Range:	0-70°C; over-temperature alarm @ 65°C.
Unit Operation:	One Push Button Switch.
Unit Indicators:	One Single Tone Audible Indicator; Dual color LED (red/green).
Battery:	Nickel Metal Hydride (NiMH).
Dimensions:	3.5" W x 9" L x .5" D (8.89cm W x 22.86cm L x 1.27cm D).
Charging Period:	1 hour quick charge at temperatures below 35°C.
Charging Adapter:	AC input: 100-130VAC, 50/60Hz or 200-240VAC, 50/60Hz; DC output: 12 VDC @ 250 mA.

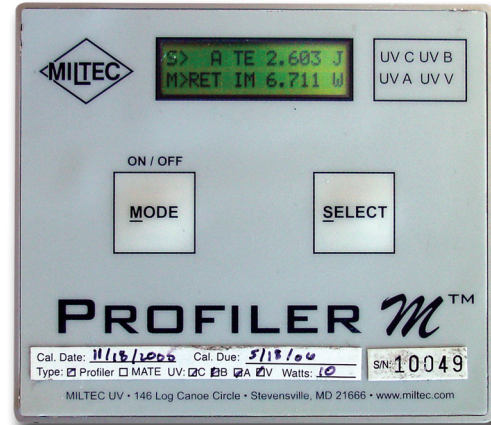


Operating Time:	Determined by configuration. Guideline: four channels on @ 512 samples/ second for a 2-minute sample period yields 30+ readings on one charge.
PC Communications:	RS232 serial port, 9600 to 115k baud.
PowerView Software Requirements:	Pentium 60MHz, 16MB RAM, one serial port, ; 20MB space available on hard drive; CD-ROM drive; Windows 95 operating system or higher.

Features

- Profiler M™ measures peak power density and total energy density in four spectral regions: UVA, UVB, UVC, and UVV
- Collection and storage of up to 80,000 data points for accurate UV and temperature mapping in your system
- Collected data displayed in combined graphical, tabbed, tiled and data table forms in the CureControl™ software package.
- Ultra-fast, user-adjustable sampling rate - up to 200 sample per second - ensures high resolution even at high speeds.
- LCD display of peak power density and total energy.
- Low, narrow profile to allow access to most curing applications
- Rugged aluminum chassis, stainless steel case, Teflon detector windows.
- On-Board Profiler memory stores up to 50 cure characterization data sets and 1 profile map.
- Conveyor “speed vs. J/cm2” calculator tool.

Miltec P/N 050-02125

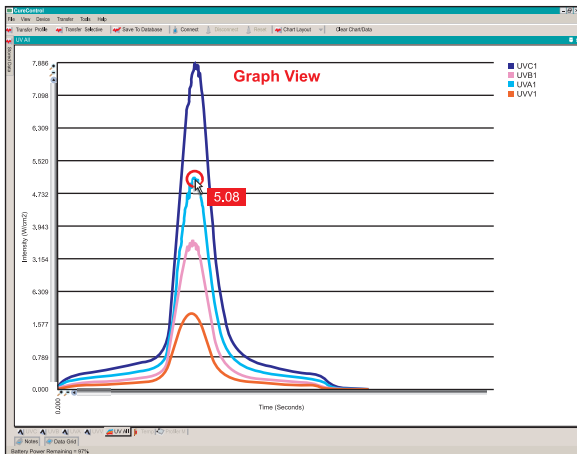


The LCD display screen makes it easy to take and store measurements without having to connect to a PC to see the test results. The Profile data of the latest test result can be downloaded to your PC at your convenience for analysis and archiving.

You can view each UV range, watts and joules, by selectively scrolling through the data on the LCD screen. The data also includes the internal temperature of the instrument.

The collected data can be saved to the internal memory of the Profiler for later viewing. Up to 50 tests can be stored.

The Profiler can retain one map profile for downloading to a PC which displays the data in graphical and data table format.



S> A TE1.10 J
M>RET IM2.14 W

S> B TE.971 J
M>RET IM1.78 W

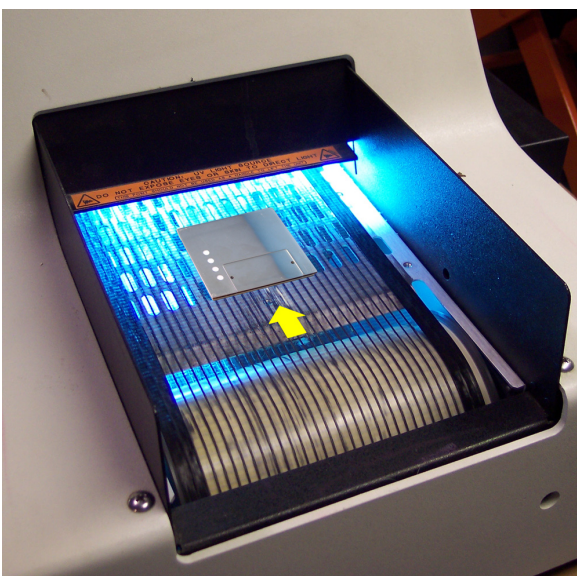
S> C TE.224 J
M>RET IM2.73 W

S> V TE.205 J
M>RET IM2.37 W

S> Temp= 26.1C
M>RET Tmax= 29.7C

Technical Specifications

Display:	7 digit LCD display, displays W/cm ² , J/cm ² and internal temperature (Celsius).
UV Intensity Ranges:	UV A, B, C and V- 5mW/cm ² , to 10W/cm ² .
Spectral Response:	UVA (310-420nm), UVB (280-330nm), UVC (200-290nm), UVV (380-505nm).
Spacial Response:	Approximately cosine.
UV Accuracy:	+/-5% typical, +/- 10% maximum.
UV Sample Rates:	User-selectable sample per second rates of: 25, 50, 100, 200.
UV Sample Period:	25@10 min., 50@5 min., 100@2.5 min., 200@1.3 min. - (samples/sec. vs. memory time).
Operating Temperature:	0°C to 80°C, user adjustable over-temperature alarm set point.
Data Storage:	Profile measurement: Stores up to 80,000 sets in one profile record (16,000 each for UVA, UVB, UVC, UVV and temperature.) Peak/Total energy measurement: Stores up to 50 summary data sets. Summary data sets contain peak intensity and total exposure for UVA, UVB, UVC, UVV and maximum temperature.
Unit Operation:	Two membrane push button switch.
Indicators:	LCD, multiple tone audio indicator.
Battery:	2 user replaceable lithium cells (CR2032 or equivalent).
Automatic Power Shutoff:	Approximately 25 min.
Unit Dimensions:	3.65" (l) x 3.20" (w) x 0.38" (h).
Weight:	5.4 oz.
Materials:	Aluminum chassis with stainless steel covers.

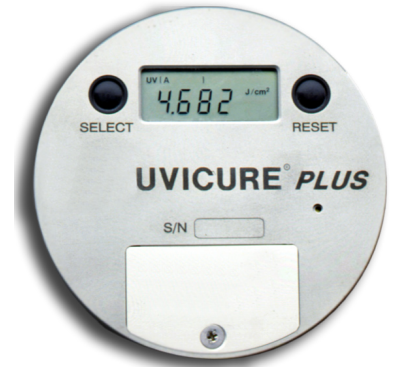
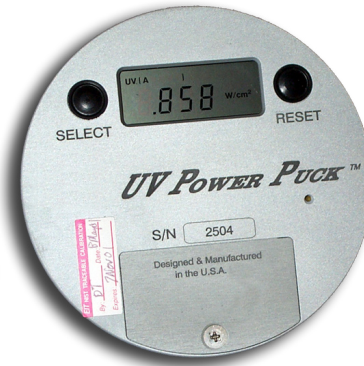




Power Puck and UVICURE Plus FEATURES

Model	Miltec P/N
UV Power Puck	050-60530
UVICURE Plus	050-60520

- Compact: 4.60" diameter - same as a CD!
- Self-contained, battery powered
- Total UV energy, Joules/cm²
- Peak UV irradiance, Watts/cm²
- Measures four UV ranges simultaneously, UVA, UVB, UVC, UVV (Power Puck)
- UV ranges - choice of UVA, UVB, UVC, or UVV (UVICURE Plus)
- Low battery indicator
- User replaceable lithium batteries



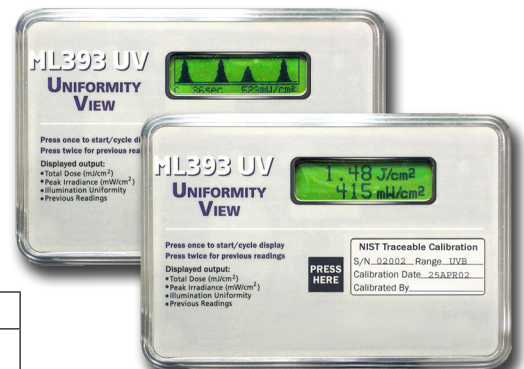
Technical Specifications

Display:	4 Digit LCD
UV Intensity Ranges:	Standard Version UVA, UVB, UVV - 5mW/cm ² to 5W/cm ² , UVC - 5mW/cm ² to 1W/cm ² . 10 Watt Version UVA, UVB, UVV - 10mW/cm ² to 10W/cm ² , UVC - 5mW/cm ² to 1W/cm ² . Low Power Versions UVA, UVB, UVV - 50μW/cm ² to 50mW/cm ² , UVC - 50μW/cm ² to 10mW/cm ² or UVA, UVB, UVV - 100μW/cm ² to 100mW/cm ² . UVC - 50μW/cm ² to 10mW/cm ²
Data Readings:	UV Bandwidth: UVA (320-390nm), UVB (280-320nm), UVC (250-260nm), UVV (384-445nm). Total Energy Range: 0-250 joules/cm ² Peak Irradiance: 0 to 5w/cm ² (UVA, UVB, UVV, 0 to 1w/cm ² (UVC); optional 10w/cm ² unit also available. Internal Radiometer Temperature Degrees Celcius (80°C max.). Low Battery indicator
User Interface:	Push button switch allows the user to obtain data from both display modes, irradiance and energy dosage.
UV Accuracy:	+ / - 5% typical, + / - 10% guaranteed.
Spectral Response - UVICURE Plus:	Choice of: UVA (320-390nm), UVB (280-320nm), UVC (250-260nm), UVV (384-445nm) - UVICURE Plus
Spectral Response - UV Power Puck:	UVA (320-390nm), UVB (280-320nm), UVC (250-260nm), UVV (384-445nm) - UVICURE Plus
Spatial Response:	Approximately cosine.
Operating Temperature Range:	0-80°C internal. The unit will tolerate much higher temperatures for short periods. A safety audible alarm will sound if internal temperature rises above a safe level.
Time-out Period:	Approximately 4 minutes RUN mode; 2 minutes DISPLAY mode.
Batteries:	(2) user replaceable lithium cells, Duracell DL2450, Sanyo CR2450 or equivalent.
Battery Life:	Over 1500 readings with typical use.
Dimensions:	4.60" diameter s .50" high (11.7cm x 1.27cm).
Weight:	11.75 oz. (333.11 grams).

ML393 FEATURES

Model	Miltec P/N
ML393	050-00014

- Graphs UV output of multiple lamp systems
- Measures peak irradiance (mW/cm²) and integrated energy (mJ/cm²)
- Compares current reading with saved reference data
- Self-contained unit, no cables or software required



Technical Specifications

Cosine Receptor:	Integrating sphere
Temperature Range:	10 to 60°C
Out of Band Rejection:	10 ⁻⁴ UVA/B, UVA, UVB, 420 10 ⁻³ UVC
Accuracy:	Typically better than 6%
Display:	Graphic 4 significant digits
Information Displayed:	Maximum irradiance Illumination irradiance profile. Standard profile to current comparison

Model	Spectral Range (nm)
ML393UVC-H ML393UVC-L	205-345
ML393UVA/B-H ML393UVA/B-L	250-400
ML393UVB-H ML393UVB-L	265-310
ML393UVA-H ML393UVA-L	315-390
ML393/420-H ML393/420-L	390-465

HIGH	Profiling starts at:	20mW/cm ² threshold
	Irradiance range:	1mW/cm ² to 20W/cm ²
	Dose Range:	1mJ/cm ² to 20J/cm ²
LOW	Profiling starts at:	1mW/cm ² threshold
	Irradiance range:	1mW/cm ² to 2.5W/cm ²
	Dose Range:	1mJ/cm ² to 20J/cm ²

Model	Miltec P/N
MicroCure	050-60610



MicroCure Features

- Small size: 1.3" x 0.95" x 0.25"
- Lightweight: 0.33 ounces
- Measures total energy density in Joules/cm²
- Measures peak power density in Watts/cm²
- High sample rate: 2000 samples per second
- High temperature resistance
- Automatic operation
- Battery operated

APPLICATIONS

The MicroCure™ radiometer is very versatile because of its small size and automatic operation. Exact method of use will depend on the given application. Some specific examples are:

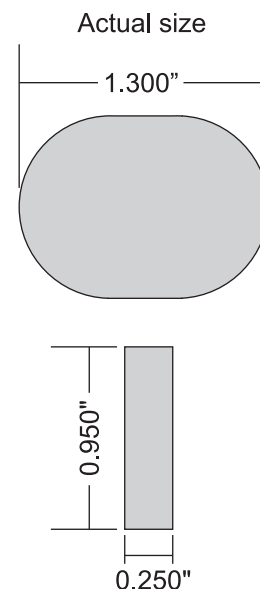
Small conveyor or batch mode - In this application, the radiometer is placed in the UV curing environment in the same manner as an actual work piece. The radiometer's very small size and ability to withstand harsh environments provides measurements in such previously inaccessible areas as small conveyORIZED semiconductor marking, credit cards, small part curing, etc.

Small container curing - UV environments encountered in small container curing such as cosmetic or drink containers, are generally characterized by putting the radiometer in the place of one of the containers. In the case of cylindrical containers like shampoo bottles, the radiometer can be attached onto the product using the included Web Accessory Kit. The radiometer can also be placed inside a container with the measurement being made through a pre-cut hole. The radiometer is retrieved at the end of the process and inserted in the DataReader. The DataReader displays the radiometer readings.

3D Objects - Attach the radiometer to objects such as furniture or vehicle dashboards to monitor UV levels on unusual shapes and processes.

Web Press - In this application, the radiometer is attached and moved from the web using a special Web Accessory Kit. The measurement is made as the radiometer passes under the lamp station in question. (The radiometer is placed on the web while it is stationary or moving and removed prior to the print station). Because of its very small size, it can pass over rollers without damage.

Compact Disc Manufacture - The MicroCure™ radiometer is sufficiently small that it can be inserted directly into one of the CD "nests" to measure the UV radiation used to cure UV coatings and finishes.



Radiometer Specifications

Spectral response:	UVA (320 to 390nm, 10% power points)
Sample rate:	2000 per second
Total Energy:	0 to 9999 Joules/cm ²
Resolution:	0.001 Joules/cm ²
Accuracy:	+/- 7% typical @ 25°C, -0.2% per°C, over operating range
Peak UV Irradiance:	Low Power (-2 Version): 100mW/cm ² to 2W/cm ² - Display flashes on over-range High Power (-10 Version): 500mW/cm ² to 10W/cm ² - Display flashes on over-range
Spatial Response:	Cosine approximation
Operating Temperature Range:	15-70°C internal
Time-out Period:	Approximately 4 minutes after last UV exposure
Batteries:	Permanent lithium cell
MicroCure Radiometer Life:	200 readings or 1 year, whichever comes first
Dimensions:	1.30" long x 0.95" wide x 0.25 thick (33.00mm x 24.13mm x 6.35mm)
Weight:	0.33oz (9.4 grams)
Materials:	Plated Aluminum, nylon

Data Reader Specifications

User Interface:	Push button switches allow user to display total energy and peak UV irradiance or to reset the unit
Dimensions:	5.77" long x 4.38" wide x 1.45" high (146.56mm x 111.25mm x 36.83mm)
Weight:	11.75 oz (333.11 grams)
Display:	4 digit LCD, programmable decimal point
Operating Temperature Range:	0-70°C
Time-out:	30 seconds
Package Material:	Steel, nylon, polycarbonate
Battery:	One user replaceable 9V lithium battery; 36,000 readings or 5 years



Section 7

Model	Miltec P/N
ML1400A	050-00020

ML1400A Features

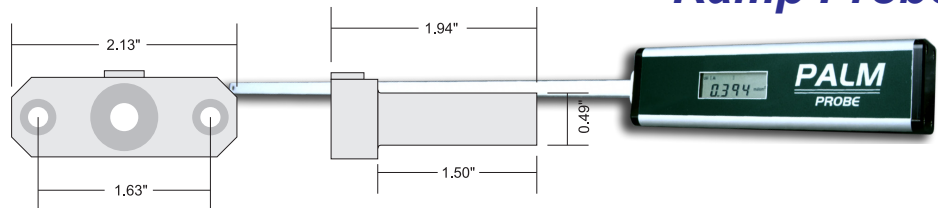
- Can be used with over 50 different pre-programmed detectors to measure UV, visible and infrared intensity levels.
- Direct digital reading in any optical units.
- Darkroom "Hold" reading feature.
- Hand-held, completely portable.
- Battery operated.
- Analog recorder output.
- Optional printer / computer port.



The ML1400 is a user friendly, portable radiometer that can be used with a variety of preselected UV, visible or IR detectors. The ML1400, when used with any detector, will display the energy level and units of measure (Joules/cm², Watts/cm², lm/ft², lux, or any other units that are commonly used). The ML1400 offers a programming mode which allows the user to change many of the default settings, as well as to customize the units and calibration information contained in each detector chip. The ML1400 contains an Analog Recorder Output and an optional RS232C port. The Recorder Output can be used as an input to a data logger or computer analog interface. The ML1400 comes complete with a rugged carrying case to protect the instrument and detectors. The ML1400 and Ramprobe attachment is ideal for web type applications and hard to reach areas.

Recorder Output and an optional RS232C port. The Recorder Output can be used as an input to a data logger or computer analog interface. The ML1400 comes complete with a rugged carrying case to protect the instrument and detectors. The ML1400 and Ramprobe attachment is ideal for web type applications and hard to reach areas.

Probe Guide Dimensions



Ramp Probe

The probe guide assembly allows you to place the probe in the same position each time, enabling you to take subsequent measurements with the same position reference for more accurate comparative data.

Optional Probe Guide Assembly
Miltec P/N 050-00609

Standard Wide Range	Miltec P/N 050-00050
Detector Type:	5.2 mm ² GaAsP detector
Filter:	WBS320 wide band
Probe Dimensions:	12"L x .19" X.19"
Spectral Range:	250-400nm
Adpater:	P8

UV C Detector	Miltec P/N 050-00080
Detector Type:	SEL240U, FFO2500
Filter:	None
Probe Dimensions:	12"L x .19" X.19"
Spectral Range:	185-320nm, 240nm peak
Adpater:	P2

UV V Detector	Miltec P/N 050-00050
Detector Type:	SEL033
Filter:	TBLU
Probe Dimensions:	12"L x .19" X.19"
Spectral Range:	370-510nm
Adpater:	P8

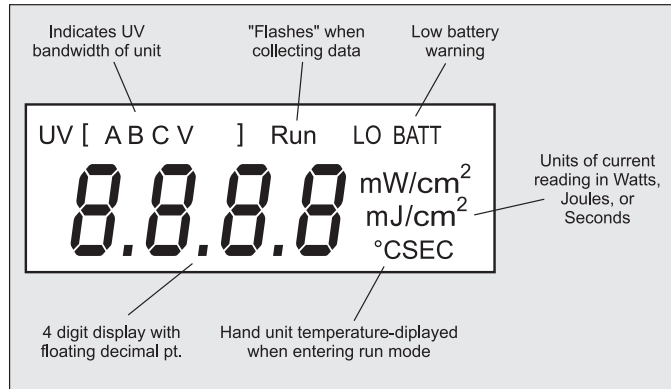
OTHER DETECTORS AVAILABLE

Model	Miltec P/N
PalmProbe	050-60565
Locator Kit	050-60566



PalmProbe Features

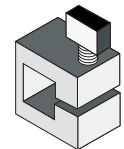
- Wide dynamic range (100,000:1 measurements; autoranging and zeroing).
- Measures and displays watts, joules, seconds; displays peak value watts/cm².
- Electrically isolated and insulated Light Guide.
- Very high temperature resistant Light Guide.
- Single hand operation; two membrane switch control.
- UV bands - choice of UVA, UVB, UVC or UVV.
- Battery powered; two user disposable AA batteries with low battery warning.



The PALM Probe radiometer addresses UV measurement and process control in areas where it has been difficult to pass a radiometer through the process. The use of UV inks and coatings has grown in label and web markets and the PALM Probe offers safe, reliable measurement for these and other applications.

The word “PALM” is an acronym for Production Ambient Light Measurement/ The PALM Probe has an extremely wide dynamic range, allowing it to read from very low levels of UV light in fluorescent bulbs to very high levels of UV found in powerful UV curing systems. The physical conditions inside a UV curing chamber are harsh. An instrument must withstand wide temperature variations. A tremendous amount of electrical energy is used to excite the UV bulb. The PALM Probe is designed to withstand the harsh physical conditions of the UV curing chamber as well as protect the operator and instrument from damage or electrical shock. Potentially lethal voltages exist in UV curing systems. Although the Light Guide has been designed to reduce the risk of shock, the user should avoid contact with the high voltage areas in the UV housing. The user holds the Probe body of the instrument and inserts the Light Guide under the UV source.

Placement of the PALM Probe needs to be in a regular and repeatable location to achieve consistent results. There are two accessories which can help with this. The first accessory is supplied with each unit and attaches over the Light Guide to allow it to be positioned to the same “stop” depth each time the PALM Probe is used to take a reading.



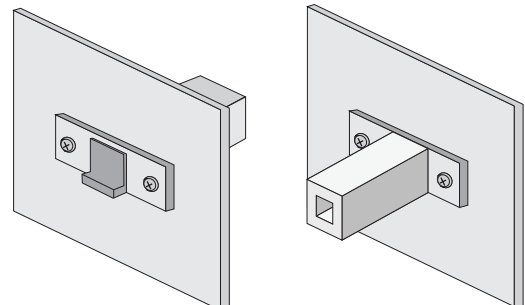
Probe Stop

The second accessory to help with placement of PALM Probe is a Locator Kit.

Radiometer Specifications

Spectral response:	UVA (320 to 390nm), UVB (280-320nm), UVV (395-445nm)
UV Range:	100µW/cm ² - 10W/cm ²
Display:	LCD with four digits and floating decimal point
User Interface:	Two raised membrane switches
Operating Temperature:	Probe body 0-70°C
Light Guide Temperature Resistance:	750°F (400°C) on a continuous basis
Batteries:	Two AA Alkaline Batteries
Battery Life:	25 hours run time
Spatial response:	Cosine approximation
Operating temperature range:	15 - 70°C internal
Time-out period:	Approximately 4 minutes after last UV exposure
Dimensions:	T.O.L 25.75" long, Probe length 18.25" long (65.4mm, 46.4mm)
Weight:	21oz. (596 grams)
Materials:	Plated Aluminum, nylon

Optional Locator Kit

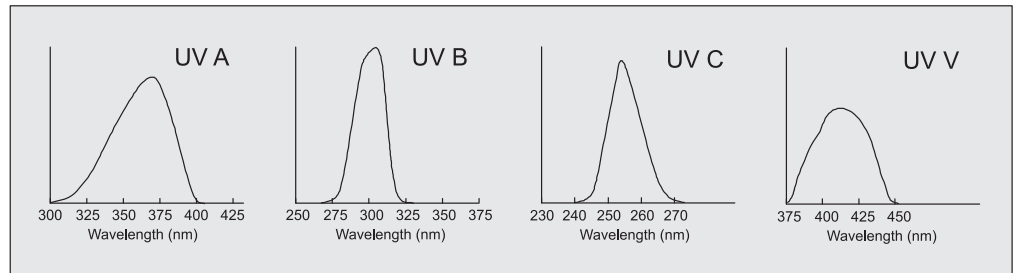


Compact Sensors

Specifications

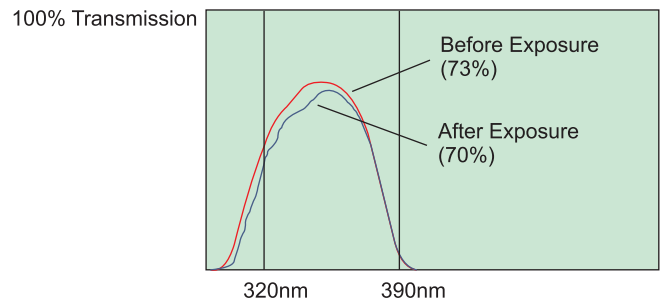


Dimensions:	CS-1	0.57" x 1.10" x 0.75" (1.45 x 2.78 x 1.91 cm)
	CS-2	0.57" x 1.10" x 0.75" (1.45 x 2.78 x 1.91 cm)
	FS	1.00" x 1.40" x 0.75" (2.54 x 3.55 x 1.91 cm)
UV Bandwidth:	UVA, UVB, UVC, UVV (see chart)	
Housing Material:	Aluminum	
Weight:	CS-1	0.8 oz. (22.68 g)
	CS-2	0.7 oz. (19.86 g)
	FS	1.5 oz. (42.52 g)
Cable:	Teflon, shielded, 10' (3m)	
Connector:	HP-1, BNC	for Online Intensity Display Module or Multibrite
	HP-2, Tinned leads	for Online Intensity Display Module or Multibrite
	HP-2	for Online Intensity Display Module or Multibrite
Temperature Range:	100°C	

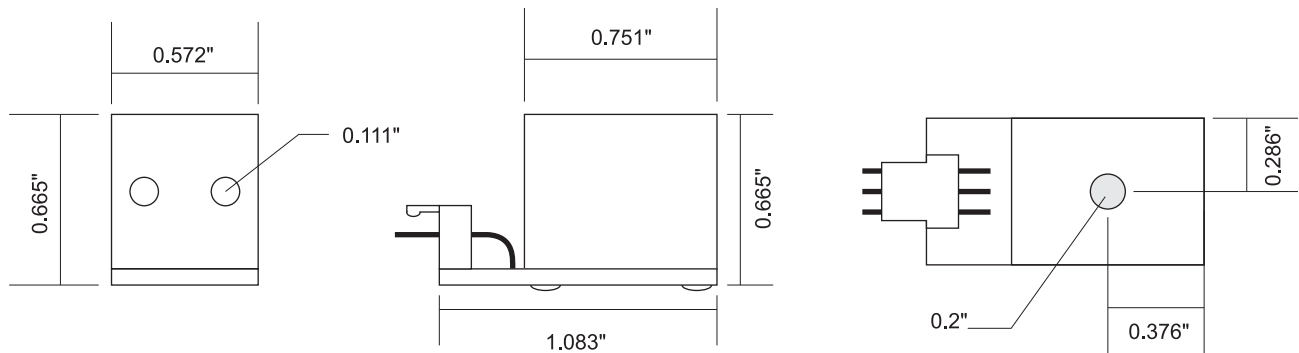


Compact Sensor Features

- Improved optics virtually eliminate solarization
- Small size for installation in tight spaces
- Squared body design for easy mounting
- For use with most lamp makes and types
- Sealed optics to prevent contamination
- Ported for air purge to keep optical path clear
- Lamp on indicator for power supply interlock (FS type)
- Compatible with monitoring equipment



UVA sensor response after 2300 hours of direct exposure to a 600w/in. lamp



Model	Miltec P/N
Multibrite	050-60560



MULTIBRITE

Monitors up to 4 Compact Sensors
PLC compatible

Specifications

Display Range:	0 - 199%
Power Source:	90 - 132VAC, 47 - 440 Hz, 200 mA
Input Current Range:	0.2 - 2.0 μ A adjustable for 100% full scale reading.
Output Current Range:	4 - 20 mA into a maximum impedance of 250 ohms
Output Voltage Range:	0 - 10 VDC into a minimum impedance of 10K ohms
Alarm Outputs:	Dry contacts rated for 0.5A at 125vac driving a resistive load
Accuracy:	+/-3% as compared to full scale (10 volts, 200%); Relay Trip Point: +/-5%
Dimensions:	Enclosure: 7.0"W x 3.5"H x 5.9"D Front Panel: 8.4"W x 3.5"H
Mounting:	Panel mounted (1/2 rack dimensions)
Material:	Painted aluminum
Weight:	3 lbs.
Temperature Range:	0-50° C
Features:	Green above limit LED, Red below limit LED, Relays contacts - normally open or normally closed

Model	Miltec P/N
UV Intensity Display	050-60550



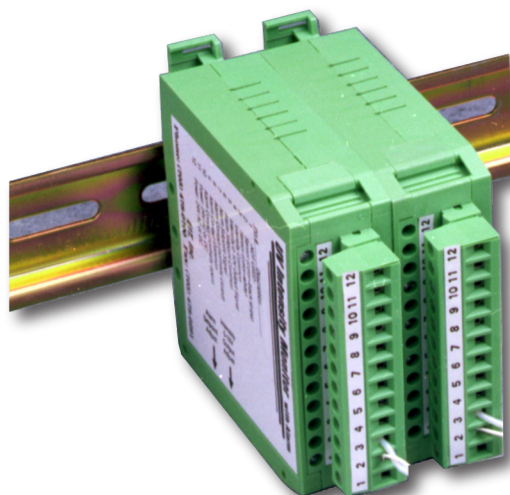
Online UV Intensity Display Module

Monitors one Compact Sensor
PLC compatible

Specifications

Display Range:	0 - 199%
Power Source:	20-28 Volts AC or DC; 500mA maximum
Output:	0-10 Volt DC- proportional to UV intensity; Display indication of 100% = 5V; Relay outputs for normally open or normally closed
Display:	2½ digit, 0.5" high digits; Green above limit LED; Red below limit LED
Output Voltage Range:	0 - 10 VDC into a minimum impedance of 10K ohms
Alarm Outputs:	Dry contacts rated for 0.5A at 125vac driving a resistive load
Accuracy:	+/-3% of full scale (10 volts = 200%); Relay Trip Point: +/-5%
Dimensions:	5.0"H x 6.5"W
Weight:	4.60 oz.
Temperature Range:	0-50° C

Model	Miltec P/N
DIN Rail Mount Sensor	050-60570



DIN Rail Mount UV Sensor

Each unit monitors one Compact Sensor
PLC compatible
Excellent for use in cabinet enclosures

Specifications

Output:	0-10 VDC - proportional to UV intensity
Display:	2½ digit, 0.5" high digits; Green above limit LED; Red below limit LED
Output Voltage Range:	0 - 10 VDC into a minimum impedance of 10K ohms
Accuracy:	Intensity: +/- 3% of full scale (10 Volts); Alarm Set Point: +/-5% from threshold setting
Dimensions:	3.56"H x 3.11"W x 0.98"D
Weight:	3.6 oz.
Temperature Range:	0-50° C

Model	Miltec P/N
J-2000	013-03500
Mositure Pins	013-03505



Wood Moisture Meter Features

- Measures moisture content from 6% to 40%
- Corrects for individual species and temperature
- Averages up to 100 accumulated readings
- Ideal for any woodworking application
- Integral electrode pins with a penetration maximum of 5/16 inches for stock up to 6/4
- For greater versatility on heavier stock or more demanding hardwood applications. An electrode can be attached to the built-in connector.

The "J" series of wood moisture meters feature a functional case with a built-in handle that makes one-hand operation fast and easy. It is recommended to order at least one pack of extra pins with each purchase, as they can break, as well as wear with use.

Cross Hatch Cutter Kit

- Miltec offers this practical, low cost, and widely accepted method to evaluate adhesion.
- Each kit is simple, precise, and comes complete with everything needed, including a copy of ASTM Test method D-3359 for use as instruction and guide.
- Each kit comes with a choice of one of three blades: fine blade, medium blade, or coarse blade.



Comes complete with: Blade with holder / handle, extra clamp screw, lighted magnifier, hex wrench for changing blades, small cleaning brush, one roll of Permacel 99 adhesive tape, copy of ASTM Test Method D-3359 for use as instruction and guide, and plastic case.

TYPE	Miltec P/N
Cross Hatch Cutter, Fine Blade, Adhesion Test Kit .04 in (1.0mm) spacing, 11 teeth	013-02100
Cross Hatch Cutter, Medium Blade, Adhesion Test Kit .06 in (1.5mm) spacing, 11 teeth	013-02200
Cross Hatch Cutter, Coarse Blade, Adhesion Test Kit .08 in (2.0mm) spacing, 6 teeth	013-02300
Permacel 99 tape replacement roll	013-02350



Model	Miltec P/N
5130	013-00010

Taber Abraser

Built-in automatic counter and stop watch, 2 auxiliary weights (1000g load), 2 auxiliary weights (500 g load), specimen holder, 4 1/4" O.D., hold-down ring for specimen hold, hex wrench, 100 discs for refacing calibrase wheels, long-handle brush, 10 specimen plates 4 n.sq., 1 pr. calibrase wheels, 1 pr. calibrade wheels, vacuum unit with suction hose and variable suction, control clean up brush.

Specifications

Input Power:	Specify: 115 volts, 60 Hz -OR- 230 volts, 50 Hz
Dimensions:	30 x 36 x 25cm (12 x 14 x 10")
Weight:	40.8 kg (90 lbs) net, 52.3 kg (115 lbs) shipping

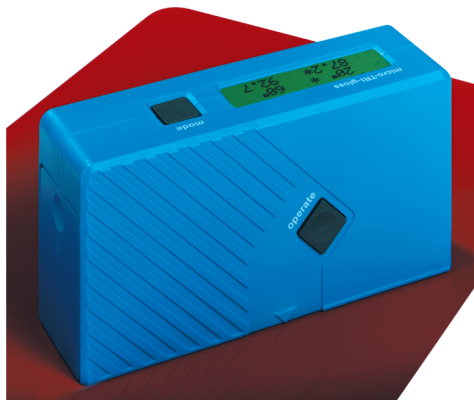
Color-Guide

Model	Miltec P/N
Color-Guide	013-03300



- **Handheld Color** - Now color measurement can be done wherever it is needed:
 - Randomly checking the color of outgoing products
 - Controlling a production process for color variations
 - Approving new batches and suppliers
 - Testing pigments for weathering and temperature stability
- **Mobile Color Measurement** - Stores up to 200 standards with tolerances and 999 samples in the color-guide's memory and control color whenever and wherever it is needed.
- **Long lasting batteries** - up to 10,000 readings per battery set
- **10 year warranty** on light source
- **Rugged and compact design**
- **Long term stable calibration** - needed only every 3 months
- **Professional Documentation with QC-link** - ISO 9000 requires documentation of color data. QC-link, included with color-guide, offers all the necessary tools:

Direct data transfer to Windows® applications (Excel®, Lotus®, Word®)
 Predefined QC-report templates (Lab-plot, trend graphs, etc. are included)
 Up/download of standards with tolerances from PC to instrument and vice-versa
 All relevant quality data can be easily summarized in one report: Color - Gloss - Film



Glossmeter

Model	Miltec P/N
Glossmeter - 45°	013-00900
Glossmeter - 60°	013-01000
Tri-Glossmeter **	013-01100

- **Single measurement and statistic mode**
- **Automatic calibration**
- **High memory capacity: 999 readings**
- **RS 232 interface** allows you to transfer data to a PC or printer for professional documentation and further analysis
- **DIN-approved and traceable** to BAM and NRC
- **Long battery life** - up to 3000 hours

** 20°, 60°, 85° geometry in one unit • Dual geometry display: 20°/60° or 60°/85° • Large memory: 7 x 999 values • Battery life up to 5000 readings

A glossmeter measures the specular reflection. The light intensity is registered over a small range of the reflection angle.

Accu Dyne Test

Model	Miltec P/N
Accu Dyne Test	013-03200

- **Specifically designed** for fast, accurate on-line use by printers, coaters and laminators
- **16 Standard levels**, from 30 through 60 dynes/cm
 - Ideal for process control or field use by suppliers of film, sheet, coated board, inks, coatings and adhesives.
 - Spring loaded tip meters fluid feed and guards against contamination.
 - Reliable enough for many R & D and lab applications.
 - Hundreds of tests from each marker.
 - Usable on virtually all smooth non absorptive substrates.
 - Six month shelf life; mix certifications provided with every order.
 - Specify any combination of dyne levels and quantities you require. (minimum order eight pens)



Electronic Lamp Tester

Model	Miltec P/N
BD-10AS	014-00010



The BD-10AS has an “on-off” switch on the handle which automatically turns off when the switch is released. Comes with standard 3 prong 110 vac plug. For use as a standard or universal tester.

The electronic lamp tester determines if a UV or fluorescent lamp is defective. Simply plug the unit into a standard wall socket and touch the probe to the end of the lamp. If the lamp is good, it will have a purple glow. This tests the seal of the lamp to assure the gases have not leaked out and the vacuum is intact.

Model	Miltec P/N
HI-1801	055-00103
HI-1501	055-00105

Microwave Leakage Testers

The HI-1501 and HI-1801 are the most popular microwave survey meters and are acceptable to the US Government (CDRH/FDA/DHHS) for compliance testing of microwave ovens. These devices are excellent for microwave leakage testing of microwave powered UV irradiators such as **Fusion UV** or **Nordson UV**.

These devices provide accuracy, resolution and portability for widespread use by manufacturers, technicians, regulatory agencies and public health and safety officials.

The unit is virtually immune to failure caused by excessive fields. Three ranges offer measurements from .01 to 100mW/cm² at 2450 MHz. Battery Powered.



HI-1801 Specifications

Frequency:	2450 MHz
Ranges:	0-10mW/cm ²
Accuracy:	± 1 dB
Response Time:	2-3 seconds
Max. Power Density:	2.0 W/cm ² continuous
Probe Length:	30 cm (12 inches)
Cable Length:	.9 m (3')
Dimensions:	2.87" x 4.2" x 2.2"
Power Supply:	9V Batteries (2)

HI-1501 Specifications

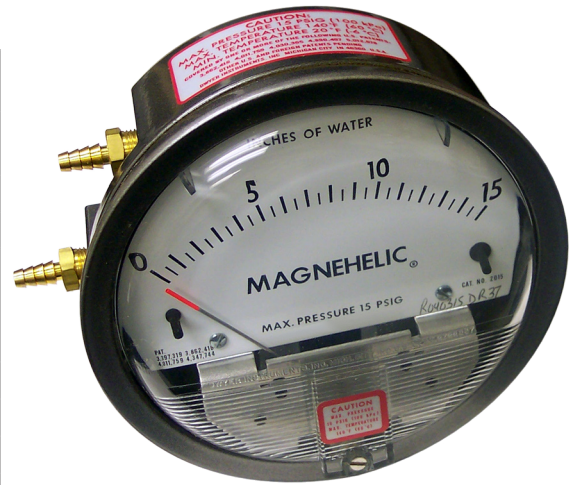
Frequency:	2450 MHz
Ranges:	0-2, 0-10, 0-100 mW/cm ²
Response Time:	to 90% of final value for a step input -Fast: < 1 second. -Slow: < 3 seconds
Max. Power Density:	2.0 W/cm ²
Probe Length:	30 cm (12 inches)
Cable Length:	1.2 m (4')
Shipping Weight:	5 lbs
Power Supply:	9V Batteries (2)

Magnehelic Differential Pressure Gage

Model	Miltec P/N
Magnehelic	055-00200

Specifications

Connections:	1/8 NPT high and low pressure taps, duplicated, one pair side and one pair back.
Accuracy:	Plus or minus 2% of full scale, at 70°F. (Model 2000-0, 3%; 2000-00, 4%).
Pressure Rating:	15 PSI (0,35 bar)
Ambient Temp. Range:	20° to 140°F (-7 to 60°C).
Standard gage accessories:	include two 1/8 NPT plugs for duplicate pressure taps, two 1/8 NPT pipe thread to rubber tubing adapters, and three flush mounting adapters with screws.
Resolution:	0.1 (0.5 - 999.9) 1 RPM > 1000
Finish:	Baked dark gray enamel.
Weight:	1 lb. 2 oz.
Dimensions:	4-3/4 dia. x 2-3/16 deep.



Model	Miltec P/N
Air Velocity Meter	014-00250

Air Velocity Meter

Features



- Measures CFM, velocity and temperature
- Compact size
- Folding probe
- Swivel display
- One button operation
- Measures: 0-200FPM, 0-10,000 cubic FPM. -4°F to 124°F

Contact Tachometer

Digital tachometer measures FPM(feet per minute), MPM (meters per minute) and RPM(revolutions per minute). Can be used to measure conveyor speed, web speed and motor shaft RPMs

Specifications

Model:	Contact Tachometer
Display:	5 digit 0.3" LCD
Range-RPM:	0.5 to 20,000
Linear Surface Speed:	0.2 to 6560 Ft./min 0.05 to 1999.9 M/min
Accuracy:	0.05%
Resolution:	0.1 (0.5 - 999.9) 1 RPM > 1000
Sampling Time:	1 μS
Power:	Four 1.5V AA batteries
Dimensions/Weight:	6.7 x 2.8 x 1.5" / 9 oz.

Model	Miltec P/N
Tachometer	014-00100



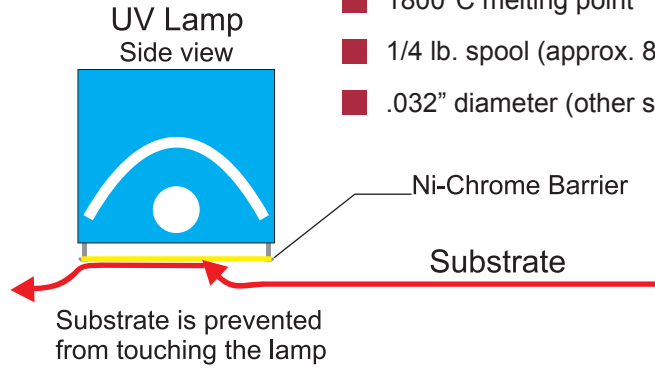
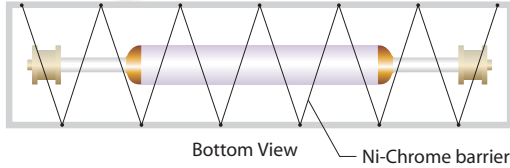
Section 8



Item	Miltec P/N
Ni-Chrome	055-00200

Ni-Chrome Wire

- Resistant to UV lamp temperatures
- Does not interfere with UV output
- 1800°C melting point
- 1/4 lb. spool (approx. 80ft.)
- .032" diameter (other sizes available)



UV Tube Guards

Block UV from fluorescent lights
Zero transmittance below 370nm

Qty.	Color	Diameter	Length	Miltec P/N
1 case (24)	Clear	1.25"	48"	060-00100
1 case (24)	Clear	1.25"	96"	060-00150
1 case (24)	Clear	1.65"	48"	060-00160
1 case (24)	Clear	1.65"	96"	060-00170

End caps are included



Doctor Blades

Size (inches)	Miltec P/N
28.5 x 2.75 x .010	160-05300
58.5 x 2.75 x .010	160-05350

Provides a thin, consistent, sharp wiping edge

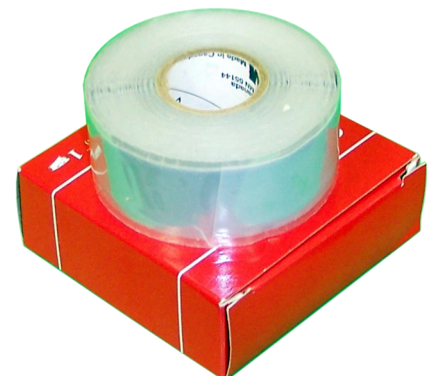
Other sizes and types are available

High Voltage, High Temperature Tape

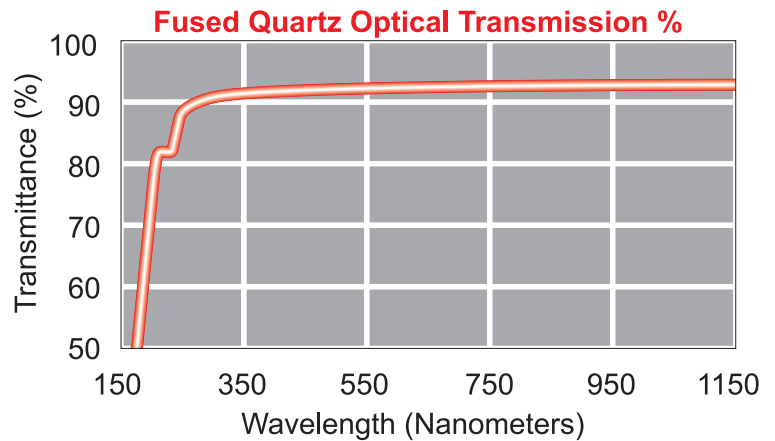
Item	Miltec P/N
Electrical Tape	010-05100

Self-fusing silicone rubber electrical tape is ideal for quick repairs on lamp wires or other high voltage connections. Class H insulation, 180° C (356°F) temperature rating.

1" x 30ft. x .012"



Quartz Plates



Miltec quartz plate glass is made from the highest grade material available in the market. It provides an excellent barrier between the lamp and substrate for use with nitrogen inerted environments or as physical protective barrier against contaminants. Standard quartz plate glass does not block IR energy and does not provide a good thermal barrier. For IR blocking, refer to REFLECTOR section for hot mirror quartz material.

FUSED QUARTZ

One of the most important properties of fused quartz is its extremely low coefficient of expansion: $5.5 \times 10^{-7} \text{ mm } ^\circ\text{C}$ (20-320°C). Its coefficient is 1/34 that of copper and only 1/7 of borosilicate glass. This makes the material particularly useful for optical flats, mirrors, furnace windows and critical applications which require minimum sensitivity to thermal changes. Very few materials can match the energy transmission of quartz, especially in the ultraviolet and infrared ranges.

Quartz Water Tubes



Available diameters
38mm
45mm

Available lengths (mm)	
307	1118
635	1173
789	1310
818	1321
870	1393
1067	1656
1098	1860

Seals included

Gasket Seal Material

Seals quartz plates frames and inerted chambers.

Description	Specification	Miltec P/N
Gasket	24" x 24" x .0125"	015-04320
Gasket	24" x 24" x .0625"	015-04300



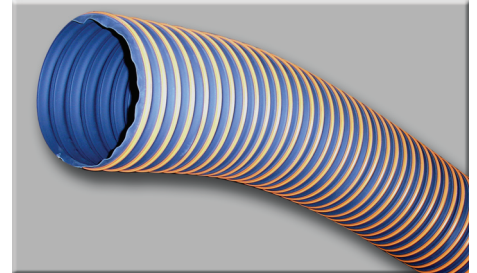
Flexible Exhaust Hose



- Type C hose is a two ply neoprene-coated polyester with high tensile strength.
- Type C-LD is a one ply neoprene-coated hose that offers excellent flexibility.
- Type N hose features a special high-strength, tear resistant fabric for exceptional durability where abrasion is a factor.

The neoprene hose-line offers an excellent range of choices for moving air, transporting dust, fumes, smoke and odors. It is ideal for shipyard venting applications. The hoses perform well in temperatures from -40°F to +250°F.

These are flexible, durable lightweight hoses - built to last! All are strip wound, using a polyester fabric coated on both sides with layers of neoprene and reinforced with a carbon steel wire helix. They provide superior chemical and abrasion resistance, and are certified to conform to UL-94-0 by Underwriters Laboratories.

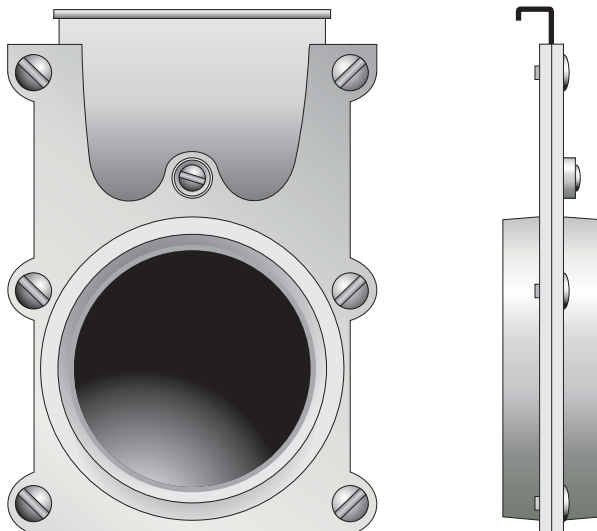


Specifications

Temperature Range:	-40°F to +250°F
Standard I.D. sizes:	1¼" to 36"
Standard length:	25ft.
Color:	Black, Orange/Black

Air Flow Blast Gate

Used to limit and balance air flow across UV lamps to prevent over-cooling and de-stabilization.



Blast gates are constructed of aluminum castings with a galvanized steel slide blade. The blade can be removed for cleaning.

Diameter	Miltec P/N
4"	120-00100
6"	120-00110
8"	120-00120
9"	120-00130

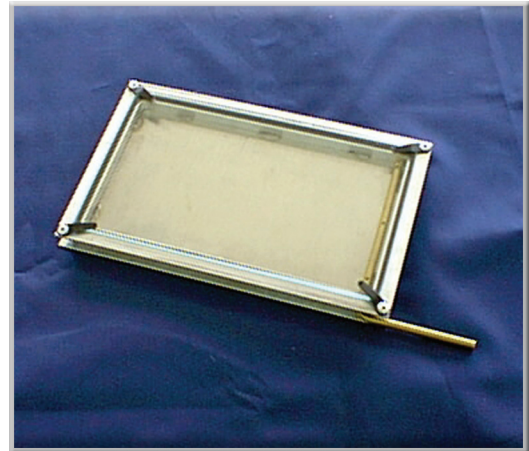
Other sizes available

Model **SLB** Nitrogen Inerted Portable UV Curing Chamber

If you are considering or developing chemistry that has improved properties when UV cured in an oxygen-free environment, the SLB will allow you to get into this field for a minimal investment compared to a nitrogen inerted conveyor.

Designed to meet laboratory, development and production needs for curing a wide variety of photo-catalyzed chemistries, including UV inks, coatings, adhesives, paints, powders in an oxygen-free environment.

Your sample or product is enclosed in a chamber with nitrogen gas flowing over the surface to be cured. The oxygen content of the nitrogen is factory certified - no expensive and unreliable instrumentation is required. Additionally, the inerting gas is supplied in safe, low pressure bottles.



Standard Features

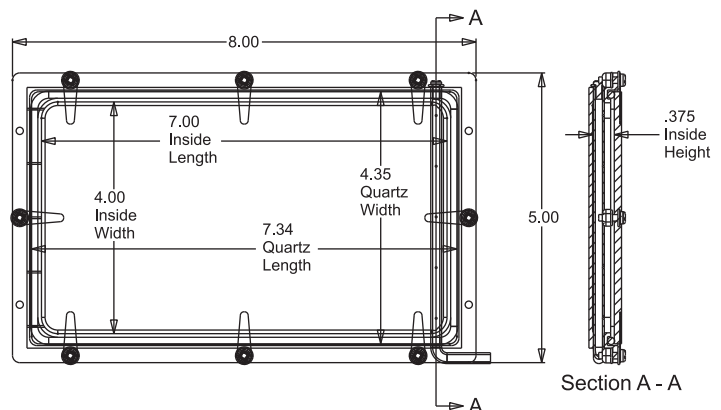
- Works with your existing UV conveyor. Outside dimensions only 5" wide by 8" long by 5/8" high.
- Large internal dimensions accept samples up to 4" wide by 6" long by 1/4" high, yet requires only 0.143 liter gas volume.
- Quartz glass window passes 90% of UV radiation Above 210 nm to your sample.
- All materials including gasket seals are both heat and UV resistant.
- Constant gas flow removes product of reaction, simulating production processes.

Optional Features

- Chamber sized to your specific requirements.
- Optional stainless steel construction for corrosive chemistries.
- Quartz glass window passing 90% of UV radiation above 190 nm to your sample.
- 221 liter gas cylinder with 50ppm, 100ppm, 1kppm, 5kppm, 1%, 5% or 10% oxygen content. Includes connections and tubing. above 190 nm to your sample.
- Gas flow regulator.

Item	Miltec P/N
Nitrogen Chamber	013-05000
Nitrogen Cylinder	013-05100
Nitrogen Regulator	013-05200

Call Miltec for more details or to receive a full size drawing



Scrapers

Miltec P/N 062-01000 3" x 3¼" x 8" Polypropylene	Miltec P/N 062-01050 4 ⅜" x 4½" x 9¾" Polypropylene	Miltec P/N 062-01150 3" x 3¼" x 8" Polypropylene	Miltec P/N 062-01250 4 ⅜" x 4½" x 9¾" Polypropylene
Miltec P/N 062-01500 4½" x 7" x 13½" Nylon	Miltec P/N 062-01650 1" x 6" x 10¼" Non-Sparking	Miltec P/N 062-01670 1½" x 9" x 14" Non-Sparking	Miltec P/N 062-03100 7⁄8" x 5" x 8¾" Carbon Steel
Miltec P/N 062-03400 7⁄8" x 5" x 8¾" Stainless Steel	Miltec P/N 062-03420 13⁄16" x 3½" x 7¾" Stainless Steel	Miltec P/N 062-03460 1½" x 9" x 12½" Stainless Steel	Miltec P/N 062-03500 1⅝" x 6" x 11" Stainless Steel
Miltec P/N 062-03550 2¼" x 8" x 13" Stainless Steel	Miltec P/N 062-03775 2" x 3⅜" x 7¼" Disposable Plastic	Miltec P/N 062-03800 8" x 3¾" x 7¼" Disposable Plastic	Miltec P/N 062-03675 1¼" x 3¼" x 7½" Disposable Plastic
Miltec P/N 062-04025 5⁄16" x 2" x 5½" S.S. Single Rounded	Miltec P/N 062-04125 5⁄16" x 3⁄16" X 2" x 7" S.S. Tapered / Rounded	Miltec P/N 062-04250 5⁄16" x 2" x 7" S.S. Rounded / Squared	Miltec P/N 062-04300 5⁄16" x 2" x 8" S.S. Double Rounded
Miltec P/N 062-04400 3⁄16" x " x 5½" S.S. Oval Spoon	Miltec P/N 062-04500 9⁄16" x 1¼" x 9" S.S. Spoon / Squared	Miltec P/N 062-02350 3" x 4¼" x 8" Carbon Steel, Stiff Blade	Miltec P/N 062-02450 3" x 4¼" x 8" Carbon Steel, Flex Blade

UV Lamp and Reflector Cleaners



Kit consists of:

- (1) can (19oz.) UV lamp and reflector cleaner spray
- (12) pairs of cotton gloves
- (2) packages of wipes (10) per package
- (available in continental US and Canada only)

Cleaning Kit

Miltec P/N
062-00085

"AMMONIA FREE"
Safe for use on

- All UV lamps
- Dichroic coatings
- Quartz Glass
- Reflector liners

Pre-Moistened Wipes

Miltec P/N
062-00019

MILTEC CLEANER WIPES are the easiest and quickest way to clean your UV lamps, reflectors, or other quartz components, and keep them in the best condition possible. Pre-moistened with a powerful ammonia-free formula, MILTEC CLEANER WIPES will remove dust, dirt, oil and grease smudges, water spots, fingerprints and smoke film from any quartz or reflector surface.

MILTEC CLEANER WIPES won't leave behind streaks or a sticky film to cloud reflective surfaces or quartz glass. Best of all, our ammonia-free formula is non-flammable and is safe to use on just about every surface including dichroic coated surfaces.

UV Pre-moistened wipes, One Case (6) tubs, each tub has (70) 9.5" x 12" towels, (available in continental US and Canada only)

Spray Cleaner

Miltec P/N
062-00015



UV cleaner spray, One case (12) 19oz. cans. (available in continental US and Canada only)

Lint-Free Wipes

Miltec P/N
062-00065

Wipes, lint free, 1 Case (200) wipes per case, each wipe is 12" x 23"

Cotton Gloves

Miltec P/N
062-00032

Cotton gloves, 1 Case (10) packages, 12 pair per package



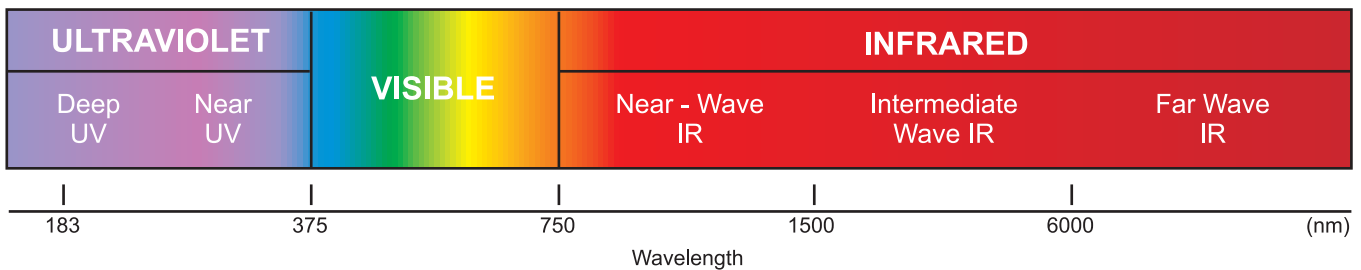
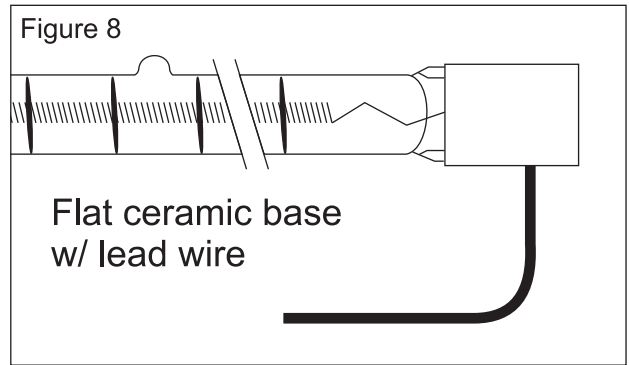
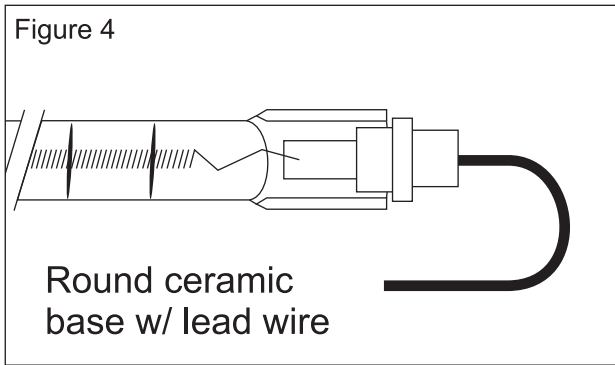
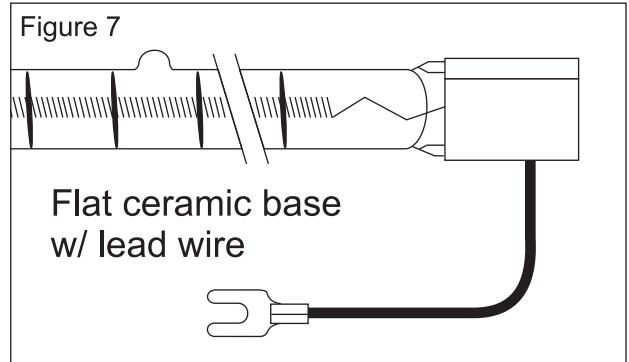
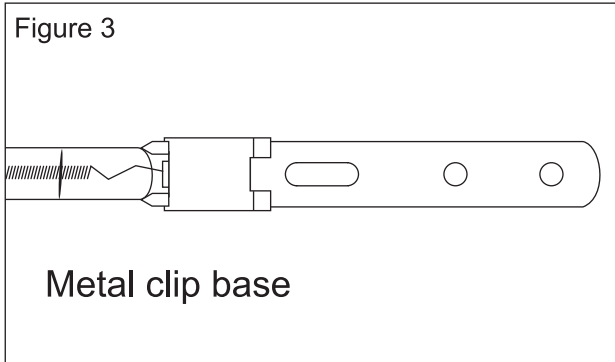
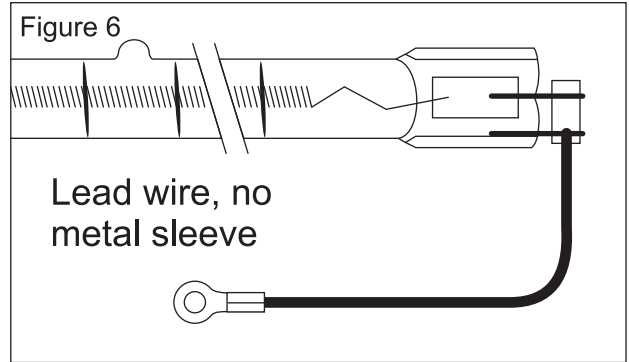
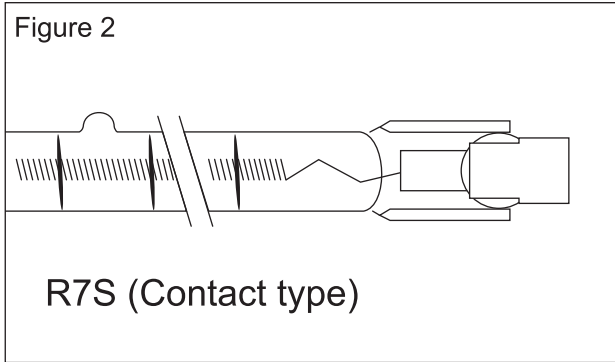
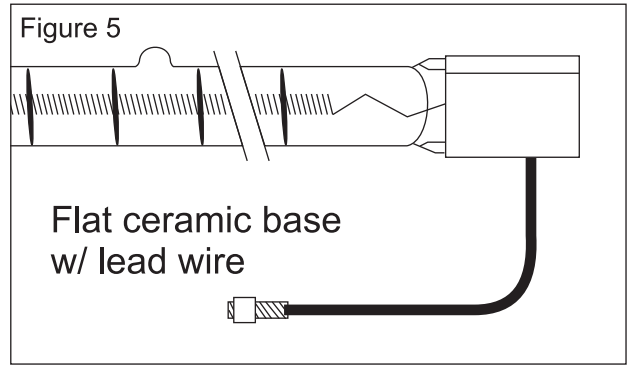
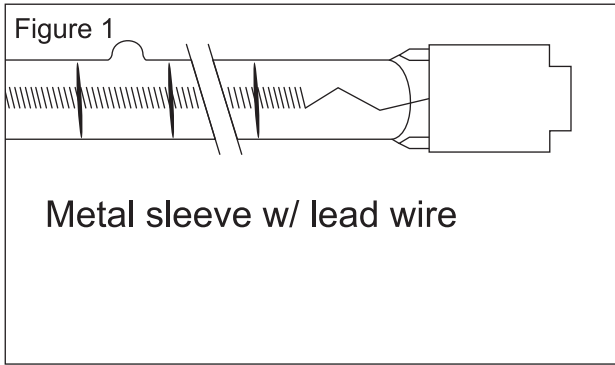
Hand Soap

Miltec P/N
170-30552

Miltec Handsoap safely removes:

- Ink
- Paint
- Varnish
- Grease
- Adhesives
- Tar
- Wood Stains
- Hydraulic Fluid

Reference Figure Identifiers





IR Lamps

Single Emitter

Section 9

MOL = Maximum overall length
 LL = Lighted length (filament length)
 L1 = Designated length

Design Voltage	Ordering Code	Lamp Code	MOL (mm)	LL (mm)	L1 (mm)	Color Temp (K)	Average Life (h)	Figure No.	Alternate Designation
300 watts									
120	1001288	QIH120-300T/S	214.0	106	—	2450	6000	1	QH300T3
375 watts									
120	1001289	QIH120-375T/S	219.0	128	215	2500	6000	2	QH375T3/7
120	1001290	QIH120-375T/S	223.0	128	—	2500	6000	1	QH375T3
500 watts									
105	1001286	QIH105-500T/S	223.0	127	—	2500	6000	1	QH500T3
120	1001292	QIH120-500/B	356.0	142	241	2500	6000	3	13169X
120	1001293	QIH120-500/L	223.0	127	—	2500	5000	4	QH500T3/CL
120	1001294	QIH120-500/S	223.0	127	—	2500	6000	1	QH500T3/CL
120	1001295	QIH120-500/S2	221.0	142	—	2500	5000	1	13169Y
120	1001296	QIH120-500/ZB	356.0	142	241	2500	5000	3	13169X/98
120	1001297	QIH120-500T/E	220.0	127	216	2500	6000	2	QH500T3/7
120	1001298	QIH120-500T/S	223.0	127	—	2500	6000	1	QH500T3
240	1001352	QIH240-500/D	227.5	165	—	2600	4000	5	13169Z
240	1001353	QIH240-500/ZD	227.5	165	—	2600	4000	5	13169Z/98
600 watts									
104	1001285	QIH104-600/S	303.0	152	—	2500	6000	1	600T3/CL/12
800 watts									
120	1001299	QIH120-800T/S	303.0	203	—	2500	6000	1	QH800T3
900 watts									
216	1001310	QIH216-900/S	405.0	229	—	2500	6000	1	900T3/CL/16
1000 watts									
208	1001304	QIH208-1000T/S	351.0	254	—	2500	5000	1	QH1000T3
240	1001315	QIH240-1000/B	485.0	272	370	2500	5000	3	13195X
240	1001316	QIH240-1000/L	350.0	254	—	2500	5000	4	—
240	1001317	QIH240-1000/S	351.0	254	—	2500	5000	1	QH1000T3/2CL/HT
240	1001318	QIH240-1000/S2	303.0	254	—	2500	5000	1	QH1000T3/CL
240	1001319	QIH240-1000/S3	351.0	272	—	2500	5000	1	13195Y
240	1001320	QIH240-1000/VB	485.0	272	370	2500	5000	3	13713X
240	1001321	QIH240-1000/VD	357.5	272	—	2500	5000	5	13713Z
240	1001322	QIH240-1000/VZD	357.5	272	—	2500	5000	5	13713Z/98
240	1001323	QIH240-1000/ZB	485.0	272	370	2500	5000	3	13195X/98
240	1001324	QIH240-1000/ZD	357.5	272	—	2500	5000	5	13195Z/98
240	1001325	QIH240-1000T/S	351.0	254	—	2500	5000	1	QH1000T3
1200 watts									
144	1001300	QIH144-1200S	224.0	155	—	2500	5000	1	QH1200T3/CL
144	1001301	QIH144-1200S2	228.0	155	—	2500	5000	1	13561Y/00
1350 watts									
115	1001287	QIH115-1350/L	317.0	256	—	2750	3000	4	13381/99
220	1001311	QIH220-1350/L	317.0	256	—	2750	3000	4	13381/99
1500 watts									
225	1001312	QIH225-1500/S	557.0	381	—	2500	5000	1	1500T3/CL/22
230	1002183	QIH230-1500/E	370.0	317	366	3100	4000	2	—
240	1001327	QIH240-1500/S	303.0	235	—	2500	5000	1	1500T3/CL/HT

Section 9

MOL = Maximum overall length
 LL = Lighted length (filament length)
 L1 = Designated length

Design Voltage	Ordering Code	Lamp Code	MOL (mm)	LL (mm)	L1 (mm)	Color Temp (K)	Average Life (h)	Figure No.	Alternate Designation
1600 watts									
144	1001302	QIH144-1600/S	229.0	150	—	2650	3000	1	13568Y/00
208	1001305	QIH208-1600/L	502.0	407	—	2500	5000	4	—
208	1001306	QIH208-1600T/E	499.0	407	495	2400	6000	2	QH1600T3/7
208	1001307	QIH208-1600T/S	503.0	407	—	2400	6000	1	QH1600T3
240	1001328	QIH240-1600/E	495.0	407	—	2500	5000	2	—
240	1001329	QIH240-1600/L2	502.0	407	—	2500	5000	4	—
240	1001330	QIH240-1600/S	503.0	407	—	2500	5000	1	QH1600T3/CL
240	1001331	QIH240-1600/S2	455.5	407	—	2500	3000	1	1600T3/1CL/HT
240	1001332	QIH240-1600/VL2	502.0	407	—	2500	5000	1	—
240	1001333	QIH240-1600T/E	499.0	407	495	2500	5000	2	QH1600T3/7
240	1001334	QIH240-1600T/L	502.0	407	—	2500	5000	4	1600T3/5
240	1001335	QIH240-1600T/S	503.0	407	—	2500	5000	1	QH1600T3
240	1001355	QIH240-1600/L	502.0	407	—	2500	5000	4	—
277	1001356	QIH277-1600T/E	499.0	407	495	2500	5000	2	QH1600T3/7
277	1001357	QIH277-1600/S	503.0	407	—	2500	5000	1	QH1600T3
1900 watts									
225	1001313	QIH225-1900/S	658.0	482	—	2500	5000	1	QH1900T3
2000 watts									
240	1001336	QIH240-2000/B	485.0	280	370	2500	5000	3	13213X
240	1001337	QIH240-2000/C	350.0	280	—	2500	5000	6	13213Y/00
240	1001996	QIH240-2000/E	357.0	271	370	2550	3000	2	—
240	1001338	QIH240-2000/L	350.0	254	—	2500	5000	4	—
240	1001339	QIH240-2000/S	303.0	248	—	2500	5000	1	QH2M/T3/1CL/HT
240	1001340	QIH240-2000/S2	351.0	254	—	2500	5000	1	QH2M/T3/CL/HT
240	1001341	QIH240-2000/VB	485.0	280	370	2500	5000	3	13168X
240	1001342	QIH240-2000/VC	350.0	280	—	2500	5000	6	13168V
240	1001314	QIH240-2000/VD	357.0	280	—	2500	5000	5	13168Z
240	1001343	QIH240-2000/VS	303.0	248	—	2500	5000	1	QHTM/T3/1CL/HT/VB
240	1001344	QIH240-2000/VZD	357.0	280	—	2500	5000	5	13168Z/98
240	1001346	QIH240-2000/VZD2	357.0	280	—	2500	5000	5	—
240	1001348	QIH240-2000/ZD2	357.0	280	—	2500	5000	5	—
240	1001349	QIH240-2000/JJ1	350.0	270	—	2500	5000	6	—
240	1002144	QIH240-2000/SEC1	354.0	290	—	2400	5000	5	glueless base
240	1002145	QIH240-2000/SEC2	354.0	290	—	2400	5000	5	fixed base
240	1001350	QIH240-2000T/S	603.0	508	—	2500	5000	1	2000T3/524
277	1001358	QIH277-2000/S	351.0	248	—	2500	5000	1	QH2M/T3/CL/HT
400	1001361	QIH400-2000/B	623.0	410	508	2500	5000	3	13245X
400	1001345	QIH400-2000/VB	623.0	410	508	2500	5000	3	13765X
2200 watts									
250	1001354	QIH250-2200/C	303.0	248	370	2500	3000	6	2200T3/CL/H
2400 watts									
461	1001370	QIH461-2400/S	786.0	610	370	2500	5000	1	2400T3/CL/31



IR Lamps

Single Emitter

Section 9

MOL = Maximum overall length
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 L1 = Designated length

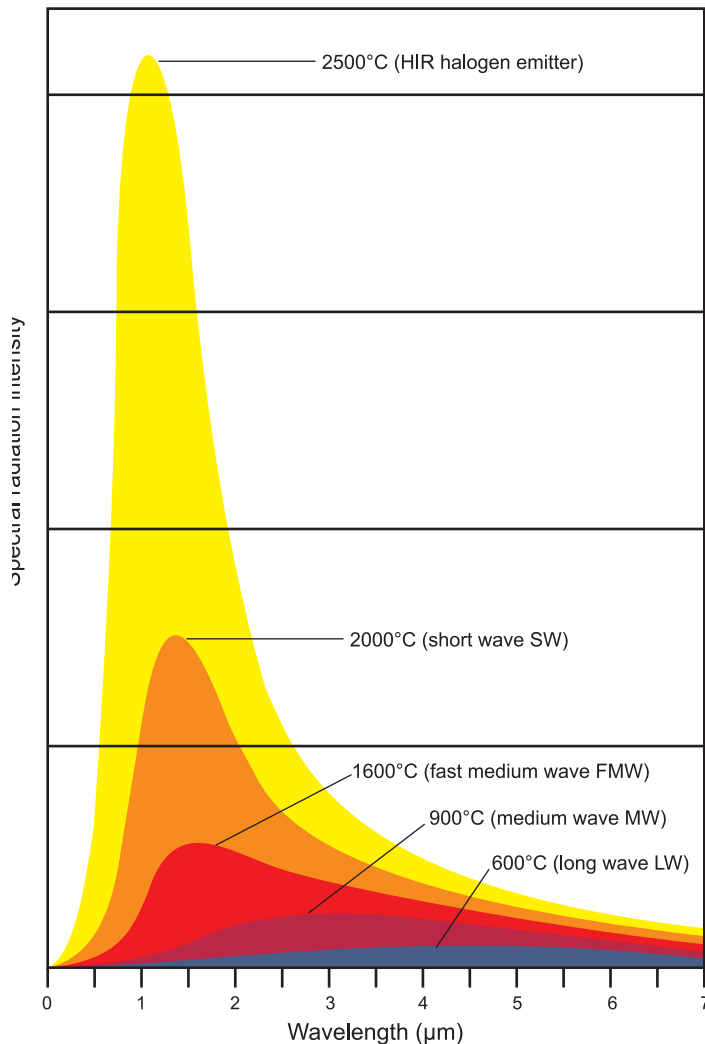
Design Voltage	Ordering Code	Lamp Code	MOL (mm)	LL (mm)	L1 (mm)	Color Temp (K)	Average Life (h)	Figure No.	Alternate Designation
2500 watts									
240	1003033	QIH240-2500ME	729.0	635	—	2500	5000	4	—
461	1001371	QIH461-2500/S	810.0	635	—	2500	5000	1	QH2500T3/R
480	1001372	QIH480-2500/L	731.0	635	—	2500	5000	4	—
480	1001373	QIH480-2500/S	732.0	635	—	2500	5000	1	QH2500T3/CL
480	1001375	QIH480-2500/VL	731.0	635	—	2500	5000	4	—
480	1001376	QIH480-2500/VS	732.0	635	—	2500	5000	1	2500T3/CL/VB
480	1001379	QIH480-2500/TE	727.0	635	—	2500	5000	2	QH2500T3/7
480	1001380	QIH480-2500T/L	729.0	635	—	2500	5000	4	—
480	1001381	QIH480-2500T/S	732.0	635	—	2500	5000	1	QH2500T3
480	1001382	QIH480-2500T/VS	732.0	635	—	2500	5000	1	QH2500T3/VB
575	1001399	QIH575-2500/S	732.0	635	—	2500	5000	1	2500T3/HT
600	1001400	QIH600-2500/L	731.0	635	—	2500	5000	4	—
600	1001401	QIH600-2500/VL	731.0	635	—	2500	5000	4	—
3000 watts									
240	1001351	QIH240-3000/S	503.0	410	—	2500	5000	1	3000T3/CL
400	1001364	QIH400-3000/B	913.0	700	798	2450	5000	3	13215X
400	1001366	QIH400-3000/VB	913.0	700	798	2450	5000	3	13230X
400	1001367	QIH400-3000/VZB	913.0	700	798	2450	5000	3	13230X/98
3200 watts									
384	1001360	QIH384-3200/S	456.0	406	—	2500	3000	1	3200T3/CL/HT
3650 watts									
480	1001385	QIH480-3650/L	1062	965	—	2500	5000	4	—
480	1001386	QIH480-3650/S	1059	965	—	2500	5000	1	3650T3/CL
480	1001387	QIH480-3650T/L	1060	965	—	2500	5000	4	QH3650T3/5
3800 watts									
420	1001369	QIH420-3800T/S	1062	965	—	2500	5000	1	3800T3/HT
570	1001392	QIH570-3800/L	1062	965	—	2500	5000	4	—
570	1001393	QIH570-3800/S	1062	965	—	2450	5000	1	QH3800T3/CL
570	1001394	QIH570-3800/VL	1062	965	—	2500	5000	4	—
570	1001395	QIH570-3800/VS	1062	965	—	2450	5000	1	3800T3/CL/VB
570	1001397	QIH570-3800T/S	1062	965	—	2450	5000	1	QH3800T3
570	1001398	QIH570-3800T/VS	1062	965	—	2450	5000	1	QH3800T3/VB
4900 watts									
480	1001388	QIH480-4900/VL	1341.3	1245	—	2450	5000	4	—
5000 watts									
480	1001389	QIH480-5000/S	1559	1496	—	2300	5000	1	5000T3/NBL
600	1001402	QIH600-5000/S	732.0	638	—	2500	5000	1	QH5M/T3/1CL/HT
960	1001403	QIH960-5000/S	1367	1270	—	2500	5000	1	QH5M/T3/CL
5800 watts									
480	1001390	QIH480-5800/VL	1621	1524	—	2500	5000	4	—

Section 9

MOL = Maximum overall length
 LL = Lighted length (filament length)
 L1 = Designated length

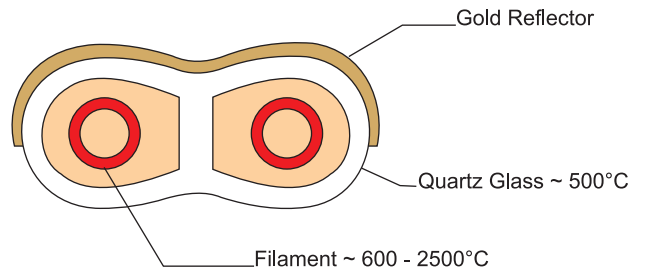
Quartz Infrared Heater Lamps with Jacket

Design Voltage	Ordering Code	Lamp Code	MOL (mm)	LL (mm)	L1 (mm)	Color Temp (K)	Average Life (h)	Figure No.	Jacket Type
500 watts									
240	1001409	QIH240-500/CD	227.0	162	176	2500	7500	7	Clear
1000 watts									
240	1001404	QIH240-1000/RD	357.0	280	306	2450	7000	7	Ruby
1500 watts									
240	1001405	QIH240-1500G/D	357.0	280	306	2450	7000	7	Gray
240	1001406	QIH240-1500R/D	357.0	280	306	2450	7000	7	Ruby
2000 watts									
240	1001407	QIH240-2000R/D	357.0	280	306	2450	7000	7	Ruby
2600 watts									
240	1001408	QIH240-2600R/D	583.0	500	533	2450	7000	7	Ruby



What is Twin Tube

Twin tube IR emitters are two IR emitters fused together as one. Therefore, they deliver more power in a smaller area, thus creating a more efficient emitter. Additionally, each twin tube emitter utilizes a 180° back reflector that is coated directly on the quartz tube envelope. This coating material is a high purity gold substrate. Gold is the most efficient IR reflective material.



Short and Medium Wave

Infrared emitters are matched to different requirements by the correct selection of wavelength. Short wave emitters offer excellent depth of penetration while medium wave emitters rapidly heat the surface and thin layers and feature very high absorption by water films. Medium wave emitters are particularly suitable for drying processes

Emitter Type	Example Applications
Halogen	Copiers, reprography, medical equipment
Short-wave	Drying of paper, inks, activation of adhesives
Fast medium-wave	Fixing systems for textiles, rubberizing
Medium-wave	Drying of paints, coatings, plastics
Long -wave	Heating of plastic foils, drying solder resists

MOL = Maximum overall length
 LL = Lighted length (filament length)

Medium wave standard emitters

Wattage	Lamp Voltage	Lamp Code	Format (mm)	MOL (mm)	LL (mm)	Figure
500	220	09752439L	18 x 8	400	300	B
1000	220	09755167L	22 x 10	600	500	B
2000	220	09755054L	33 x 15	900	800	B
2500	220	09755255L	33 x 15	1100	1000	B
2500	220	09753923L	22 x 10	1300	1200	C
3250	220	09753187L	33 x 15	1420	1300	B
3750	220	09754585L	33 x 15	1600	1500	B
4000	380	09752912L	33 x 15	1700	1600	B
4100	380	09754863L	33 x 15	1800	1700	B
4500	380	09754783L	33 x 15	1920	1800	B
5000	380	09754619L	33 x 15	2120	2000	B
6250	380	09753874L	33 x 15	2600	2500	B

High Speed medium wave standard emitters

Wattage	Lamp Voltage	Lamp Code	Format (mm)	MOL (mm)	LL (mm)	Figure
4800	380	09751473	13 x 14	1115	1000	B
4000	380	09751471	13 x 14	2215	2100	B
9500	380	09751474	13 x 14	2250	2100	C
4800	380	09751472	13 x 14	2715	2600	A
9600	380	09751475	13 x 14	2750	2600	C

Short wave standard emitters

Wattage	Lamp Voltage	Lamp Code	Format (mm)	MOL (mm)	LL (mm)	Figure
3000	380	09751720	23 x 11	1100	1000	A
600	110	09751713	23 x 11	145	80	B
1500	220	09751751	23 x 11	300	200	B
1200	220	09751741	23 x 11	405	340	B
3000	380	09751740	23 x 11	600	500	B
3000	220	09751761	23 x 11	650	500	C
4200	220	09751765	23 x 11	850	700	C
6000	380	09751760	23 x 11	1150	1000	C
7000	380	09751731	23 x 11	1450	1300	C
6000	380	09751780	23 x 11	1450	1500	D
5000	380	09751783	23 x 11	1850	1700	D
7000	380	09751788	23 x 11	1850	1700	D

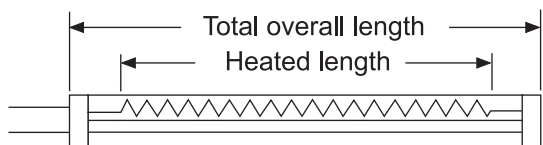


Figure A



Figure B



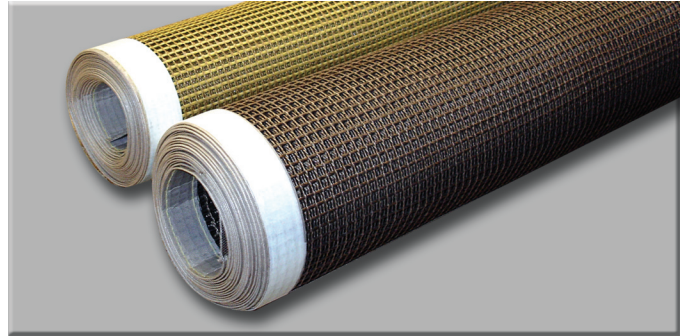
Figure C



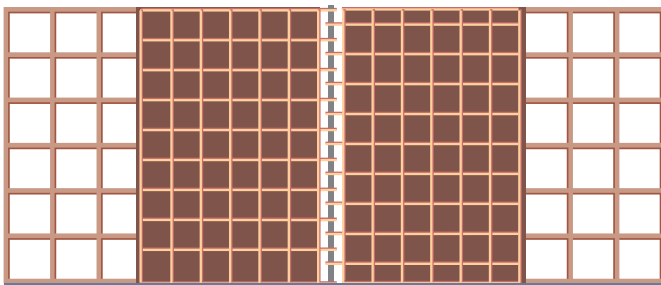
Figure D

MC Series

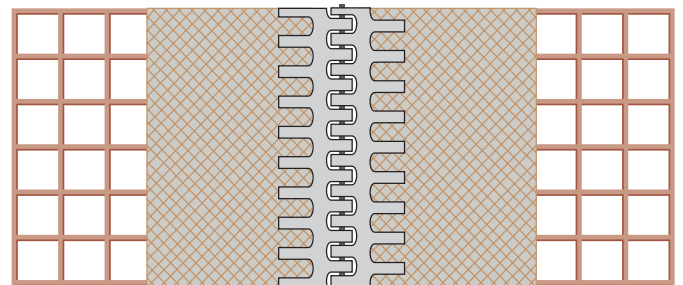
These open mesh conveyor belts are made from woven fiberglass cloth that are coated with Teflon™, giving it superb UV resistant properties. This coating, combined with the excellent strength characteristics, and broad operating temperature range (+550°F) results in a product appropriate for use in a variety of demanding drying and UV curing applications. With an open area of 70%, there is a high level of air flow increasing the rate of drying while reducing power consumption.



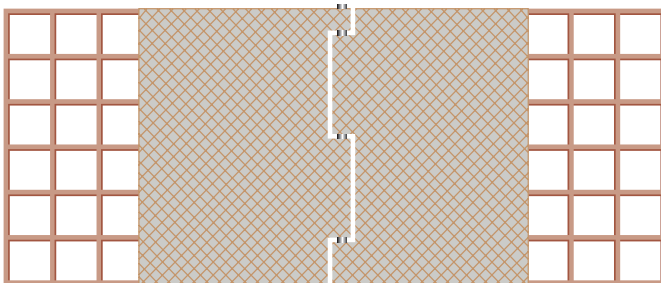
Specification	MC200	MC300	MC400HD	MC500K
Fiber:	Fiberglass	Fiberglass	Fiberglass	Kevlar
Coating Type:	Teflon™ (PTFE)	Teflon™ (PTFE)	Teflon™ (PTFE)	Teflon™ (PTFE)
Thickness:	.030"	.048"	.060"	.027"
Window Opening:	.188"	.250"	.313"	.109"
Pounds per inch of width:	190	310	515	355
Elongation (%):	2	2	2	<5
Operating temp. range:	+550°F	+550°F	+550°F	+550°F
Recommended pulley diam:	6" (180°) wrap	6" (180°) wrap	6" (180°) wrap	3" (180°) wrap
Maximum available width:	118"	84"	83"	84"
Material color	Tan or UV Black	Tan or UV Black	Tan or UV Black	Yellow
Description:	MC200 is comparable to the standard products offered by most of our competitors, with one major distinction - MC 200 has 15% more PTFE (Teflon), providing a thicker coating and increased wear resistance and cleanability.	MC300 is recommended for most UV screen print applications. MC 300 has 35% more PTFE (Teflon), providing the heaviest coating and dramatically increasing the belt's wear resistance and cleanability. MC 300 belts are 60% stronger, increasing the belt's durability.	MC400HD is our heavy duty mesh, recommend-ed for conveying sharp, jagged or heavy objects. MC 400 has 20% more PTFE (Teflon), providing a heavier coating and increases the belt's wear resistance and cleanability. MC 400 belts are 170% stronger, increasing the belt's durability.	MC500K (Kevlar) is recommended for applications which require superior tear resistance, where steam or water is involved, where sharp and jagged objects are conveyed and where conveyors are operating at high speeds.



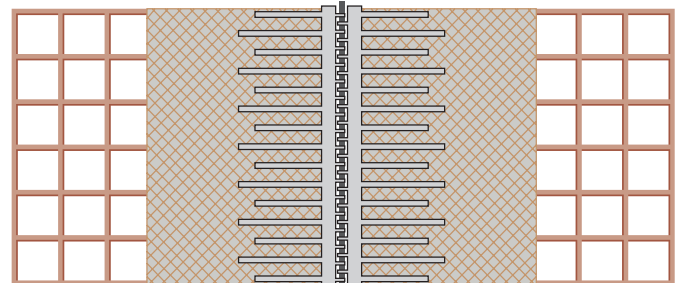
Porous Kevlar® Loop Splice



Alligator®

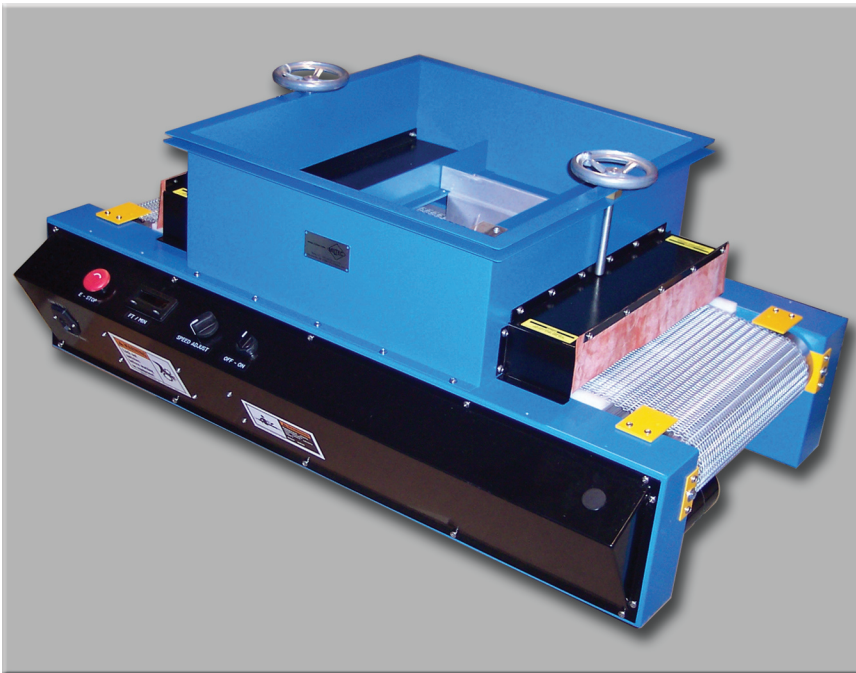


Reinforced Softseal Loops



Clipper®

MC-12 Table-top Conveyor



The MC 12 is designed to accommodate either arc lamp UV modules or microwave powered UV lamp modules and is ideal for lab testing or small parts processing.

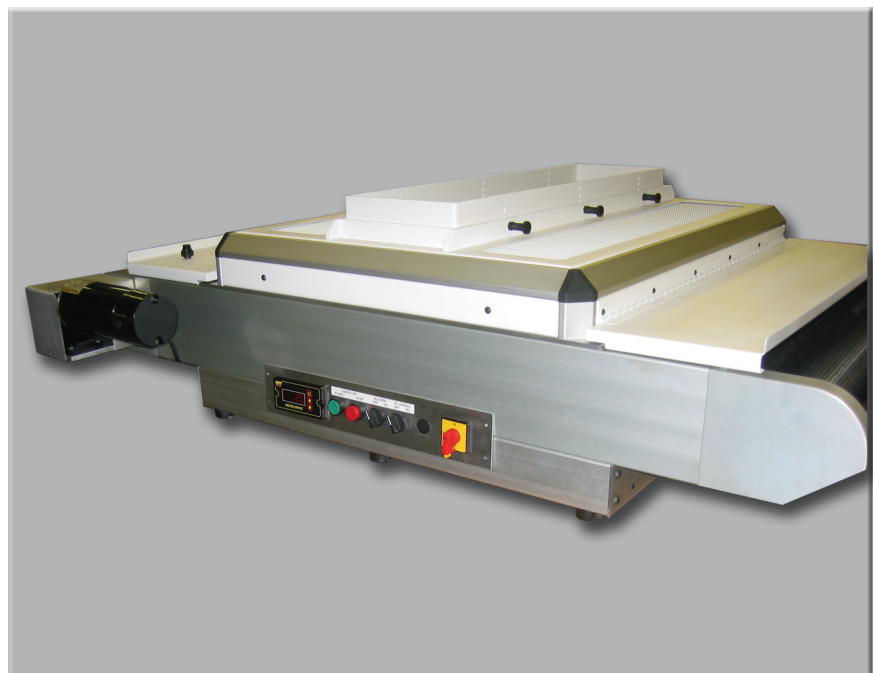
Item	Miltec P/N
MC-12	028-01000

Features

- Durable, production-ready construction
- Footprint is 42" long x 23" wide
- All materials UV and heat resistant as required
- Steel belt rollers ride on sealed ball bearings
- 14" wide metal mesh belt driven by 1/12th HP DC ball bearing gearmotor
- Processes parts up to 2.75" high
- Continuous adjustable focus from nominal to 3" out of focus
- Part entry doors and silicone rubber exit curtain
- Speed ranges 2-100 and 6-400 feet per minute with included belt pulleys
- Digital speed readout
- Vacuum hold -down possible with suitable exhaust blower
- Optional exhaust blower available

Custom Designed Conveyors

Miltec can provide you with any custom built conveyor configuration to suit your requirements. The custom conveyor can be table-top or free standing. Mounting can be provided to accept rows of microwave powered UV lamps or arc lamps. Height adjustment can be added to provide flexibility of maintaining focus for different thickness products.



Call for details and pricing

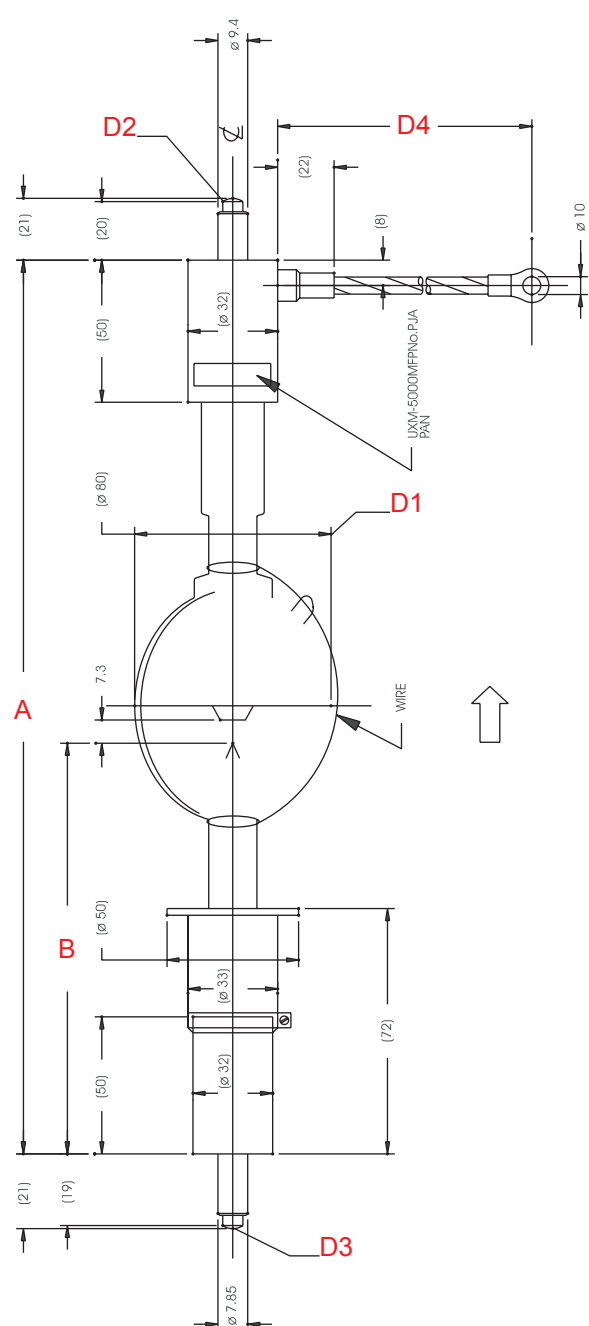
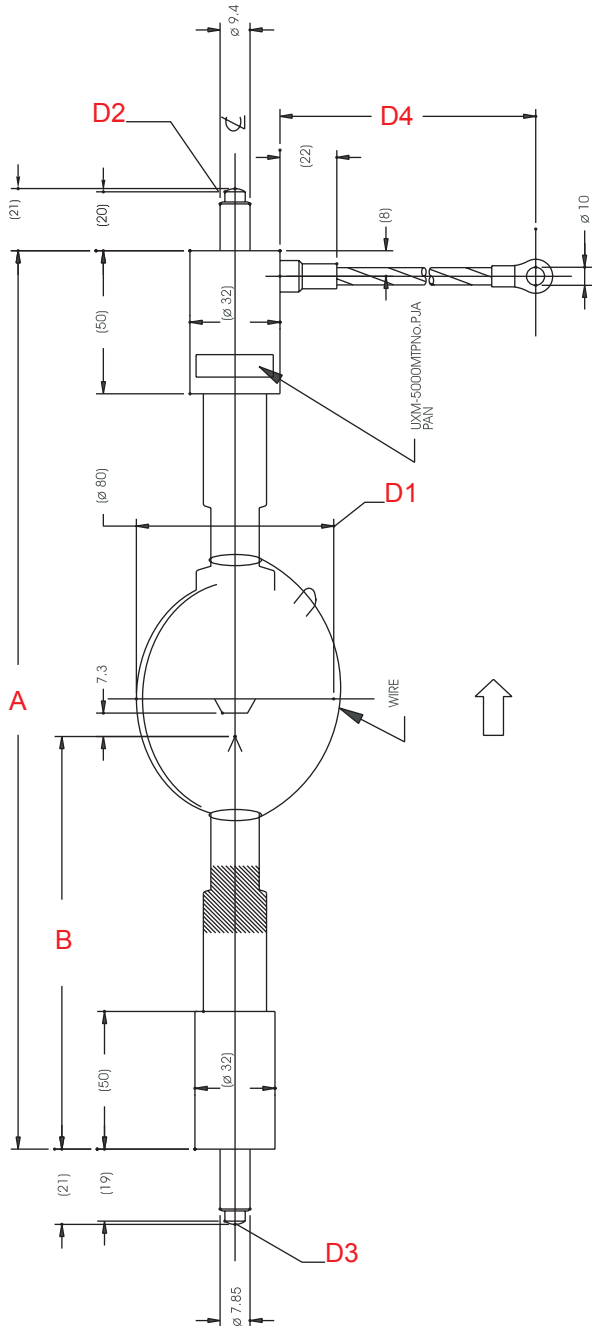
OEM	Equipment Type	OEM P/N	Miltec P/N	Lamp Type
Colight	3kw		SMW-30	Mercury Capillary
Colight	5kw		SMW-50U	Mercury Capillary
Dynachem	AES 3000		SMW-30	Mercury Capillary
Gyrex	3kw		SMW-30	Mercury Capillary
Gyrex	5kw		SMW-50	Mercury Capillary
Hi-Tek	3kw	HT-3000	UAI-3000	Mercury Capillary
Hi-Tek	5kw	HT-5000	UAI-5000	Mercury Capillary
Hi-Tek	6kw	HT-6000	UAI-6000	Mercury Capillary
Hi-Tek	8kw	HT-8000	UAI-8000	Mercury Capillary
Matrex	5kw	ME-3500	UAI-5000	Mercury Capillary
Matrex	6kw	ME-5000	UAI-6000	Mercury Capillary
Matrex	8kw	ME-8000	UAI-8000	Mercury Capillary
Mimir	Ultraline #0224, (3kw)		SMW-30	Mercury Capillary
Mimir	Ultraline #0236, (5kw)		SMW-50U	Mercury Capillary
OAC/ORC	HMW-201B (3kw)	IML-3000	TPI-30	Mercury Capillary
OAC/ORC	HMW-201B (5kw)	IML-5000	TPI-50	Mercury Capillary
OAC/ORC	HMW-201-5k	IML-5000	TPI-50	Mercury Capillary
OAC/ORC	HMW-401	IML-5000	TPI-50	Mercury Capillary
OAC/ORC	HMW-501	IML-5000	TPI-50	Mercury Capillary
OAC/ORC	HMW-532	IML-3000	TPI-30	Mercury Capillary
OAC/ORC		CHM-2000	SMW-20	Mercury Capillary
OAC/ORC		CHM-3000	SMW-30	Mercury Capillary
OAC/ORC		CHM-3500	SMW-35	Mercury Capillary
OAC/ORC		CHM-4000	SMW-40	Mercury Capillary
OAC/ORC		CHM-5000	SMW-50	Mercury Capillary
Optical Radiation	Opti-Beam Series		UXM-5000MF	5kw Short Arc
Tamarack			UXM-5000MT	5kw Short Arc
Tamarack			UXM-8000MF	8kw Short Arc
W.R Grace	Accumask		UXM-5000MF	5kw Short Arc
W.R Grace	Accumask Jr.		UXM-5000MF	5kw Short Arc
W.R Grace	Accutrace		UXM-5000MF	5kw Short Arc
Dupont Riston	PC24, PC30, PC130	MO23	MHL-4001	Metal Halide
Dupont Riston	PC23, PC30, PC130	MO61	MHL-4007	Metal Halide
ORC	7kw	MXA-7000	MHL-7000	Metal Halide
ORC	7kw	SMXL-7000	MHL-7007	Metal Halide
Olec		L-1250	MHL-170L	Metal Halide
Olec		L-1261	MHL-261L	Metal Halide
Olec		L-1280	MHL-280L	Metal Halide
Olec		L-1281	MHL-281L	Metal Halide

Replacement lamps for ORC, Tamarack and Automa-tech

Lamp Type	Watts	Amps	Volts	Gap Length	A	B	D1	D2	D3	D4	Burn Position	Figure No.
					MOL	LCL	Diameter ϕ (mm)					
UXM-5000MT	5000	100	50	7.3	360	143.5	80	21	21	320	Vertical	1
UXM-5000MB	5000	100	50	7.3	349	143.5	80	10	21	229	Vertical	1
UXM-5000MF	5000	100	50	7.3	360	143.5	80	21	21	320	Vertical	2

Figure 1

Figure 2



OEM	OEM Part Numbers						
Amerigraph	HID 10048	HID 10265	HID 10266				
Argus	1656-01-002	1656-01-004					
Advanced Systems	D-6506C431						
Agfa	Agfa 2000						
Berkey, Burgess, PAKO	1406-01	1406-02	1406-03	1406-04	1406-05	1406-06	1406-07
	1406-7(240V)	1406-457	MP2000T8/4J				
Beltron	TH 5080	TH 5090					
Bacher 6000/BASF	TH 5020	TH 5060	TH 5027	TH 5067			
Colight	30053-00	30053-06	30056-00	30056-02	48-106	SC6000	53-463
DuPont	MO23	MO61	MO44				
Dainippon	PXM4000	PXM4100	PXM4200	MA120N	MA180N	MA250N	MA250N2
	MA400N	MA500N	MA625N	MA700N	MA800N	MA900N	MA1000N
	MAL180NL	MAL250NL	MAL400NL	MAL500NL	MAL625NL	MAL700NL	MAL1400NL
	SPG4000S	SPG6000S	UPX4000	UPX4003			
ESC Amerika	THS1507						
GAF	754543						
Grace	6524A431						
Kelleigh	233-101A	210-101C	235-106B	249-101B	237-111A	238-111A	245-111A
	163-401	163-401B	299-105				
Napp	925010	925011	925014	925016	925018	925019	925032
Nuarc	GW114	GW114 (Diazo)	HT28	HT32	HT121	KM5	KT98
	FS90	HQ89	JP32	JP33	KT38	KT79	LY33
Olec	L1150A	L1250	L1251R	L1260	L1261	L1280	L1281
	L1282						
Osram	Ultramed 400						
Ozalid	754543						
Panasonic	NUM10081	NUM15021	NUM60081				
Roconex	MP4000T8/12J						
Riston / Staub	MO23	MO61					
Sylvania	MP2000T8/4J	MP3000T8/6J	MP3000C	MP4000C	MP4500C	MP4000T8/12J	
Theimer / Violux	TH 500	TH 1000	TH 1007	THS 1007	TH 1500	THS 1507	TH 2000
	TH 2008	THS 2117	TH 3000	THS 3000	TH 3007	THS 3007	THS 3020
	THS 3027	TH 4000	TH 4007	TH 4010	TH 4027	TH 5000	THS 5000
	TH 5007	THS 5007	TH 5010	TH 5017	TH 5018	TH 5020	THS 5020
	TH 5027	THS 5027	TH 5060	TH 5067	TH 6027	TH 8020	TH8027
Toshiba	M2000L81-N	M4000L81-N	M5600L81-N	M6400L81-N	M8000L81-N	M11KL/81-N	M3000L/22
	M3600L/22	M8400L/22	M9600L/22	M13KL/22	M17KL/22	M4000L/63N	M11KL/63N
	M16KL/63N	M21KL/63N	M22KL/63N				
UVex	DC22-L	MA900N	MA1000N	MAL180NL	MAL250NL	MAL400NL	MAL500NL
	MAL625NL	MAL700NL	MAL1400NL	SPG4000S	SPG6000S	UPX4000	UPX4003



Metal halide lamps contain mercury, scandium and various other metal halogens in an inner bulb that produces a very high light output. As the high temperature of the arc discharge excites the halogenides to evaporate and separate into atoms, the metallic atoms illuminate and release the pre-determined target ultraviolet wavelength. The mercury line of 365 nanometers remains present, and although depressed in strength, the combination of these halogenides effect the required ultraviolet wavelengths required for photopolymer, multi-spectrum and diazo processing applications.

For the operation of a metal halide lamp, bridge-gap ballasts designed for metal halide lamps should be used. Bridge-gap ballasts are designed with a higher open circuit secondary and a higher current carrying capacity. A thermal fuse should also be integrated into the ballast.

Lamp Handling and Safety

Metal Halide discharge lamps emit ultraviolet radiation which is harmful to eyes and skin!

Metal Halide discharge lamps should only be used in enclosed fixtures with ultraviolet absorbing filter glass. Failure to do so may cause serious skin burn and eye damage.

Do not use these lamps in fixtures where any unfiltered light is emitted from the fixture.

Do not operate these lamps if the ultraviolet absorbing filter glass is broken or not installed.

Metal Halide discharge lamps should only be operated in an enclosed fixture that safely contains all lamp parts in the event of a lamp burst or rupture. These lamps operate at a high internal pressure and at high temperatures. A lamp burst may occur causing physical injury and property damage.

Lamps should never be operated beyond their rated useful life. The risk of a lamp burst increases with lamp age, temperature, improper operation, and improper handling.

Never bump, drop, apply excessive stress, or scratch the lamp. This could cause the lamp to burst! Do not operate any lamps with any traces of scratches, cracks, or physical damage.

Never operate a lamp above or below its rated current or voltage. This may cause the lamp to leak or burst.

Always turn off the electrical power before inserting, removing, or cleaning the lamp.

Clean any dirt, oil, or lint away from the lamp with alcohol and a lint free cloth or tissue.

Electrical connections should be clean and in good condition. Replace lamp holders and sockets when needed. Affix the lamp securely in the socket. Improper installations will cause electrical arcing, overheating, and short life to lamp and socket.

Never touch the lamp when it is on or soon after it has been turned off, as it is hot and will cause serious burns. Lamps should be allowed to cool for a minimum of ten (10) minutes after the lamp is turned off.

Do not use lamp in close proximity to paper, cloth or other combustible material that can cause a fire hazard.

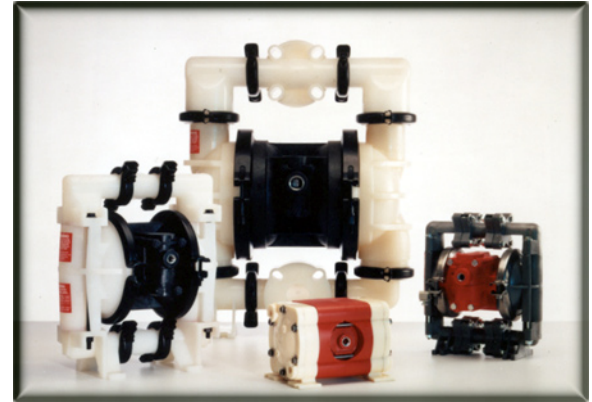
Do not look directly at the operating lamp for any period of time; this may cause serious eye injury.

Metal Halide discharge lamps contain mercury. USHIO strives to preserve the environment and make efficient use of resources. Please refer to your local environment laws regarding disposal and recycling of mercury containing lamps. Miltec UV offers a lamp recycling service. Call us for details.



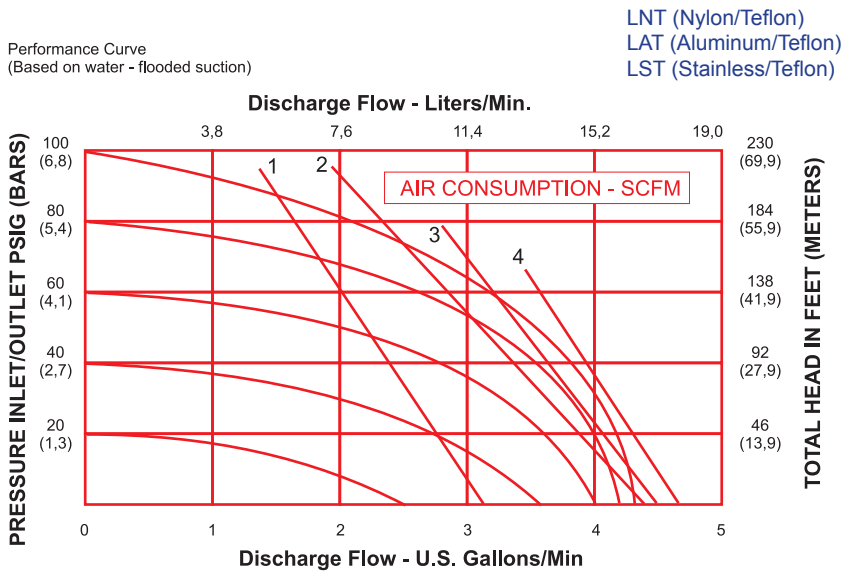
Features

- Durable, heavy wall molded nylon housing.
- Handles highly viscous materials, UV coatings, sludge, slurries, motor oil.
- Explosion-proof, air operated, no electrical motors or wiring.
- Self priming up to 12 feet.
- No seals, runs dry without damage.
- Variable flow, adjust the inlet air pressure and vary the pump output flow.
- Easy cleaning and maintenance, manifold and pump chambers are smooth-contoured for clean-out and convenience. Ball check area and manifolds can be removed from the pump chambers.



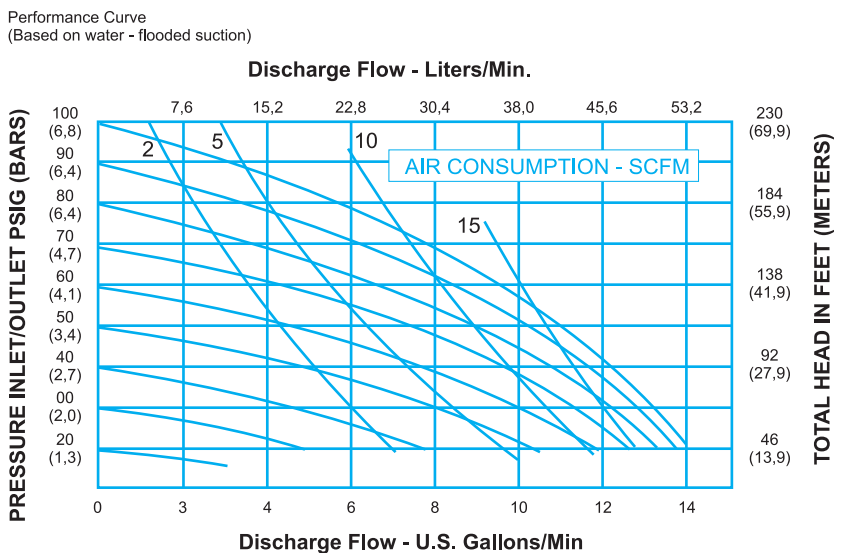
Resistant to:

UV curable inks, UV curable coatings, UV curable adhesives, UV curable wood fillers, sealers and top coats, paints and lacquers, detergents, lubricants and power steering fluids, gasoline, hydrocarbons, most aldehydes, esters, and aromatic materials, fat and grease, both animal and vegetable.



1/4" Pump

Model Type	Miltec P/N
LNT - 1/4"	065-00003
Specifications:	
Maximum Temp:	150°F
Capacity:	Adjustable. 0-4.3 GPM
Maximum psi:	100
Minimum psi:	20
Dry lift capacity:	100 psi
Maximum solids:	.0625"
Fluid inlet discharge:	1/4" NPSF



1/2" Pump

Model Type	Miltec P/N
LNT, LAT, LST - 1/2"	065-00040
Specifications:	
Maximum Temp. LNT:	150°F
Maximum Temp. LAT:	200°F
Maximum Temp. LST:	200°F
Capacity:	Adjustable. 0-14 GPM
Maximum psi:	100
Minimum psi:	20
Dry lift capacity:	100 psi



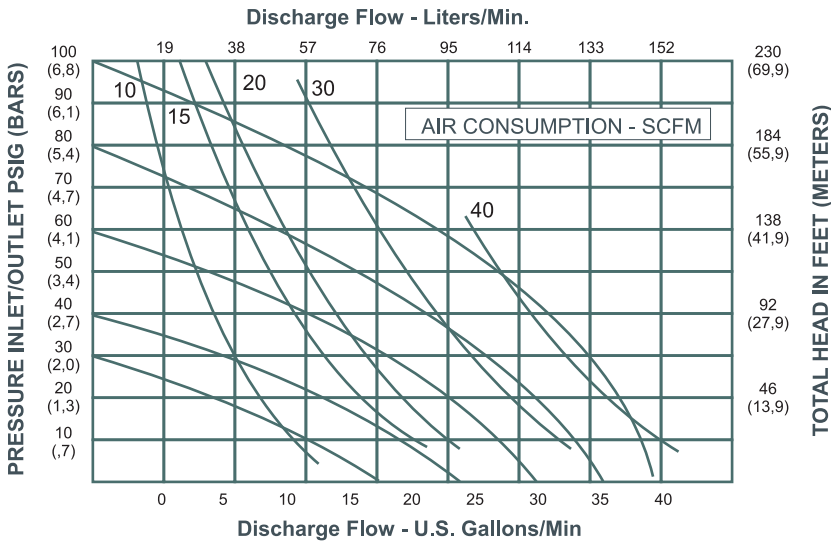
Dual Diaphragm Pumps

UV Compatible

LNT (Nylon/Teflon)
LAT (Aluminum/Teflon)
LST (Stainless/Teflon)

Section 12

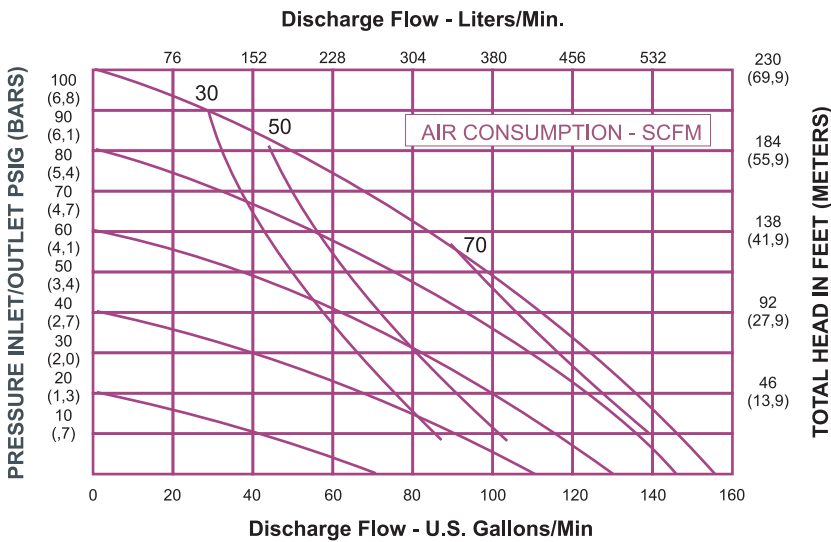
Performance Curve
(Based on water - flooded suction)



1" Pump

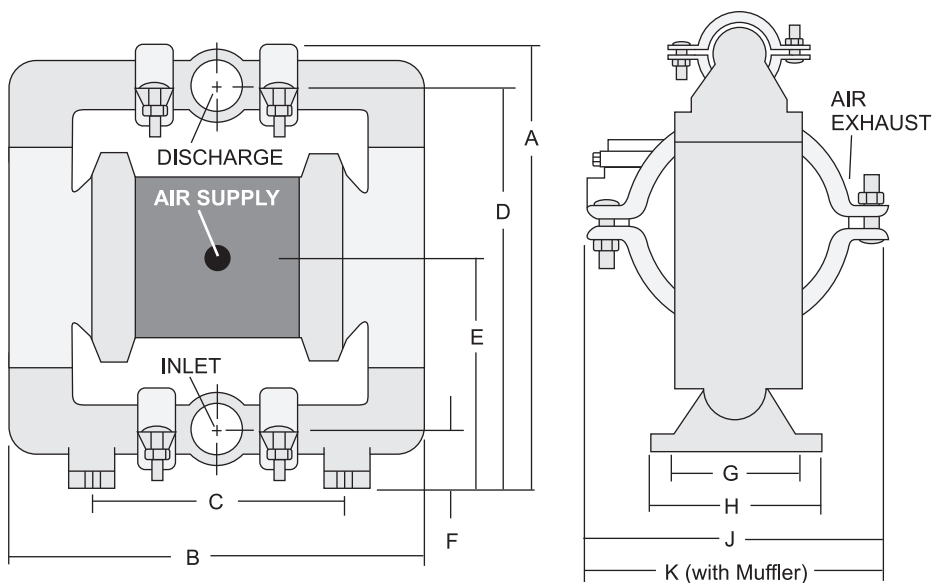
Model Type	Miltec P/N
LNT, LAT, LST - 1"	065-00050
Specifications:	
Maximum Temp. LNT:	150°F
Maximum Temp. LAT:	200°F
Maximum Temp. LST:	200°F
Capacity:	Adjustable. 0-40 GPM
Maximum psi:	100
Minimum psi:	20
Dry lift capacity:	100 psi

Performance Curve
(Based on water - flooded suction)



2" Pump

Model Type	Miltec P/N
LAT, LST - 2"	065-00050
Specifications:	
Maximum Temp. LNT:	150°F
Maximum Temp. LAT:	200°F
Maximum Temp. LST:	200°F
Capacity:	Adjustable. 0-150 GPM
Maximum psi:	100
Minimum psi:	20
Dry lift capacity:	100 psi



Inlet	Non-metallic			Metallic		
	1/2"	1"	2"	1/2"	1"	2"
A	10.75	15.50	26.00	8.34	12.69	24.62
B	9.76	12.00	20.62	10.86	12.00	19.50
C	5.70	7.74	12.00	4.46	6.76	12.00
D	9.38	13.50	23.00	7.82	11.78	21.62
E	6.19	8.30	13.25	5.21	7.14	13.25
F	1.38	2.00	3.50	1.10	1.44	3.50
G	3.26	5.12	5.00	3.24	4.18	5.00
H	4.00	6.00	6.00	4.00	5.00	6.00
J	7.50	9.90	11.56	7.50	9.95	11.88
K	8.00	11.00	14.00	8.00	11.00	14.00
Max Solids	1/8"	1/4"	1/4"	1/8"	1/4"	1/4"
Air Inlet	1/4"	1/4"	3/4"	1/4"	1/4"	3/4"
Air Outlet	3/8"	3/4"	3/4"	3/8"	3/4"	3/4"



Absorbance - An index of the light absorbed by a medium compared to the light transmitted through it. Numerically, it is the logarithm of the ratio of incident spectral irradiance to the transmitted spectral irradiance. It is unitless number. Absorbance implies monochromatic radiation, although it is sometimes used as an average applied over a specified wavelength range.

Absorptivity (absorption coefficient) - Absorbance per unit thickness of a medium.

Additive lamps - Medium pressure mercury vapor UV lamps (arc or microwave) that have had small amounts of metal halide(s) added to the mercury within the bulb. These materials will emit their characteristic wavelengths in addition to the mercury emissions. [This term is preferred over doped lamps].

Bandwidth - The range of wavelengths between two identified limits, expressed in the same units as wavelength (nm).

Cosine response - Description of the spatial response to incident energy where response is proportional to the cosine of the incident angle. A radiometer with a diffuser or a photo-responsive coating will exhibit nearly cosine response.

Dichroic - Exhibiting significantly different reflection or transmission in two different wavelength ranges. Dichroic reflectors which have reduced reflectance to long wavelengths (IR) are also called "cold mirrors."

Diffuse - A characteristic of a surface that reflects or scatters light equally in all directions (often confused with spread reflectance).

Doped lamps - Term applied to UV lamps having metal halide additives to the mercury to alter the emission spectrum of the lamp. (Historically this term has been used by UV arc lamp manufacturers. It is a slightly imprecise usage, as the added chemical does not alter the properties of another). [The preferred term is additive lamps].

Dose - A common, but loosely used, term for energy density, or radiant flux density, at a surface. (It is a precisely defined term in EB curing: 1 Gray (Gy) = 1 J/kg, a measure of absorbed energy per unit mass). In other technologies, the term usually applies to energy absorbed within the medium of interest, but in UV curing, is equated only to irradiant energy density arriving at the surface of the medium of interest. [The preferred shortened term is energy density, expressed in J/cm² or mJ/cm²].

Dynamic exposure - Exposure to a varying irradiance, such as when a lamp passes over a surface, or a surface passes under a lamp, or lamps. In that case, energy density is the time-integral of the irradiance profile.

Dynamic range - The span between the minimum irradiance and the maximum irradiance to which a radiometer will accurately respond. Expressed as a ratio, or in measured units (e.g., watts/cm²).

Effective energy density - Radiant energy, within a specified wavelength range, arriving at a surface per unit area, usually expressed in joules per square centimeter or millijoules per square centimeter (J/cm² or mJ/cm²). Is expressed in a specified wavelength range (without wavelength specification, it is essentially meaningless). Commonly accepted abbreviations are W I or E I.

Effective irradiance - Radiant power, within a specified wavelength range, arriving at a surface per unit area. It is expressed in watts or milliwatts per square centimeter (W/cm² or mW/cm²) in a specified wavelength range (without wavelength specification, it is essentially meaningless). For brevity, when the wavelength range is clearly understood, the term is shortened to irradiance. Commonly accepted abbreviations are E I or I I. Compare **spectral irradiance**.

Emission spectra - Radiation from an atom or atoms in an excited state, usually displayed as radiant power vs wavelength. Emission spectra are unique to each atom or molecule. The spectra may be observed as narrow line emission (as in atomic emission spectra), or as quasi-continuous emission (as in molecular emission spectra). A mercury plasma emits both line spectra and continuum simultaneously.

Energy density - Radiant energy arriving at a surface per unit area, usually expressed in joules or millijoules per square centimeter (J/cm² or mJ/cm²). It is the time-integral of irradiance. (Terms applied in other technologies include "radiant exposure," "light dose," and "total effective dosage"). Compare fluence and dose.

Fluence - The time-integral of fluence rate. (J/m² or J/cm²). For a parallel and perpendicularly incident beam, not scattered or reflected, energy density and fluence become identical.

Fluence rate - The radiant power of all wavelengths passing from all directions through an infinitesimally small sphere of cross-sectional area dA, divided by dA. For a parallel and perpendicularly incident beam, not scattered or reflected, irradiance and fluence rate become identical. (W/cm² or mW/cm²)

Flux - (radiant flux) The flow of photons, in einstein/second; one einstein = one mole of photons.

Intensity - A generic term, with a variety of meanings; undefined, but commonly used to mean irradiance. Generally mis-applied in UV curing. Its precise optical meaning is flux/steradian (W/sr), applied to emission of light; not useful in UV curing. [The preferred terms are irradiance or effective irradiance].

Irradiance - Radiant power arriving at a surface from all forward angles, per unit area. It is expressed in watts per square centimeter or milliwatts per square centimeter (W/cm² or mW/cm²). Compare effective irradiance, spectral irradiance and fluence rate.

Irradiance profile - The irradiance pattern a lamp; or, in the case of dynamic exposure, the varying irradiance at a point on a surface that passes through the field of illumination of a lamp or lamps; irradiance vs time.

Joule (millijoule) - A unit of work or energy (a newton-meter). The time-integral of power. Abbreviated J or mJ. (Although derived from a proper name, the term is not capitalized, while its abbreviation is capitalized).

Line emission - Narrow lines of emission from an atom in an excited state. These are the "spikes" observed in spectrometry. Low-pressure sources exhibit finely distinguished line emission, higher pressure sources exhibit more continuous spectra.

Monochromatic - Light radiated from a source that is concentrated in only a very narrow wavelength range (bandwidth). This may be accomplished either by filters or by narrow-band emission.

Monochromator - An instrument that separates incoming radiant energy into its component wavelengths for measurement. Two methods are used for dispersing the radiation: diffraction grating or prism. The typical resolution may be 1 nanometer or less.

Nanometer - Unit of length. Abbreviated nm. Equals 10^{-9} meter, = 10⁻³ micron, = 10 Å (ångstrom). Commonly used unit to define wavelength of light, particularly in the UV and visible ranges of the electromagnetic spectrum. An older equivalent term, millimicron, is rarely used today.

Optical density - The logarithm of the reciprocal of reflectance or transmittance. A dimensionless number. In printing and color, it is the log of the ratio of visible light absorbed by an "absolute white" to the light absorbed by the measured ink.

Peak irradiance - The intense, peak of focused power directly under a lamp. The maximum point of the irradiance profile. Measured in irradiance units (W/cm^2).

Photometer - An instrument for measuring visible light, usually filtered or corrected to match the human eye response.

Power - (radiant) see radiant power - The rate of radiant energy or total radiant power (W) emitted in all directions by a source.

Power - (UV lamp) - Tubular UV lamps are commonly described by their operating power in "watts per inch" or "watts per centimeter." This is derived simply from the electrical power input divided by the effective length of the bulb. (It does not have a direct meaning to the output efficiency of a lamp system, to the spectral conversion efficiency, to the curing performance, nor to the UV irradiance delivered to a work surface).

Polychromatic, or polychromic - Consisting of many wavelengths.

Quantum yield - A measure of the photon efficiency of a photochemical reaction. The ratio of the number of chemical events per unit time to the number of photons absorbed per unit time. It is a unitless measure.

Radiachromic - Exhibiting a change of color or optical density with exposure to light. A character of films whose color or density change can be correlated to exposure to UV energy.

Radiance - Generally refers to the radiant output of a source. It is radiant flux per unit area per steradian ($W/cm^2/sr$). In UV curing, it is used generically rather than as a precise optical term.

Radiant power - Rate of energy transfer, expressed in watts or joules/second ($W = J/sec$).

Radiant intensity - Power per unit of solid angle from a source, expressed in watts/steradian (W/sr).

Radiant energy - Energy transfer, expressed in joules or watt-seconds ($J = W \times sec$).

Radiometer - A device that senses irradiance incident on its sensor element. Its construction may incorporate either a thermal detector or a photonic detector. The instantaneous signal output will usually have a linear proportionality to radiant flux, and will depend on incident wavelength(s). The resulting characteristic response to irradiance versus wavelength is called responsivity.

Responsivity - (spectral sensitivity) - The response or sensitivity of any system in terms of incident wavelength. In radiometry, it is the output of a device versus wavelength.

Spectral output - The radiant output of a lamp versus wavelength. It is displayed in a variety of ways, but commonly a graph or chart of output watts plotted against wavelength. The appearance of the plot will vary dramatically, depending on the wavelength resolution used. A technique of normalizing is to integrate energy over 10-nanometer bands, to reduce the difficulty of quantifying the effects of line emission spectra.

Spectral absorbance - (absorbance spectrum) - Absorbance described as a function of wavelength.

Spectral irradiance - Irradiance at a given wavelength per unit area per unit wavelength interval. Expressed in $W/cm^2/nm$. Usually measured with a spectroradiometer. Compare effective irradiance.

Spectroradiometer - An instrument that combines the functions of a radiometer and a monochromator to measure irradiance in finely divided wavelength bands.

Static exposure - Exposure to a constant irradiance for a controlled period of time. Contrast with dynamic exposure.

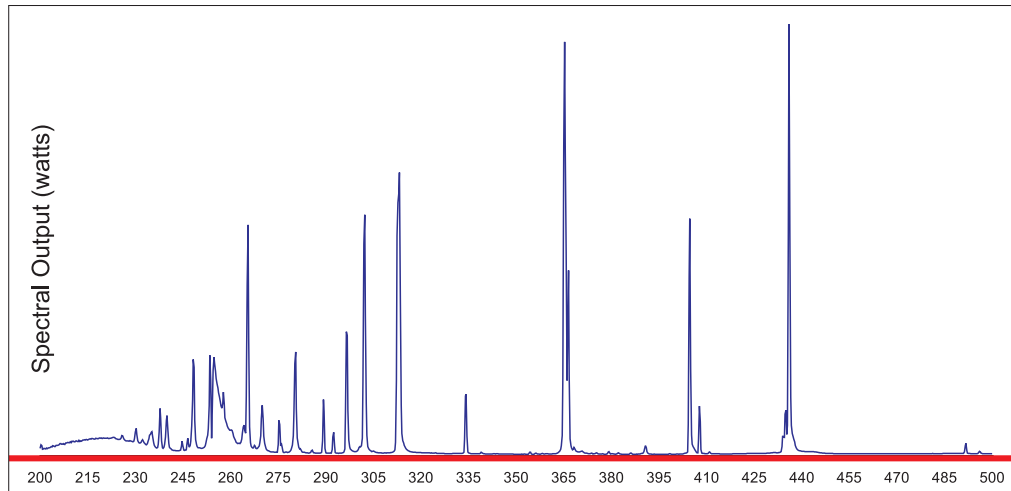
UV - Ultraviolet. Radiant energy in the 100 nm to 450 nm range. 100 nm to 200 nm is generally called vacuum UV (VUV), because it does not transmit in air. There is no precisely defined boundary between UV and Visible Light, and may be considered about 400-450 nm.

UVA, UVB, UVC, VUV - Designations of UV wavelength ranges, originally for distinction of physiological effects of UV, and establishment of safe exposure limits. The generally accepted ranges are: (VUV: 100-200 nm), (UVC: 200-280 nm), (UVB: 280-315 nm) and (UVA: 315-400 nm). VVA is commonly referred to as long UV wavelengths; while UVC is considered short UV wavelengths. VUV stands for "vacuum UV." Measurement of specific ranges may be defined by the responsivity of a radiometer. It should be made clear, when referring to these ranges, exactly what wavelengths they represent. Specific manufacturers of radiometers will use uniquely specified ranges.

Watt (milliwatt) - The absolute meter-kilogram-second unit of power equal to the work done at the rate of one joule per second or to the power produced by a current of one ampere across a potential difference of one volt : 1/746 horsepower. Abbreviated W or mW. In optics, a measure of radiant or irradiant power. (Even though the term is derived from a proper name, it is not capitalized, while the abbreviation is capitalized).

Wavelength - A fundamental descriptor of electromagnetic energy, including light. It is the distance between corresponding points of a propagated wave. It is the velocity of light divided by equivalent frequency of oscillation associated with a photon. UV wavelengths are currently measured in nanometers (10^{-9} meter). An older term, Ångstroms (Å= 10^{-10} meter) is rarely used today. The typical symbol for wavelength is λ (lambda).

Standard Mercury Spectral Distribution



The graph at the left displays the distribution of light radiated from a medium pressure Mercury vapor lamp. The distribution is shown as a function of radiant power (in Watts) for each wavelength over the entire UV range (between 200 and 450 nm). A bulb that only contains Hg will inherently have a nice spike of energy in the longwave region (at 365 nm), but will have most of its output in the shortwave UV range (between 220 and 320 nm).

Most UV curable formulations will benefit from the contributions of short and longwave UV. It is a known fact that all UV curable materials will absorb (or block) the short wavelengths of light from penetrating into the depths of the material, even if the material appears to

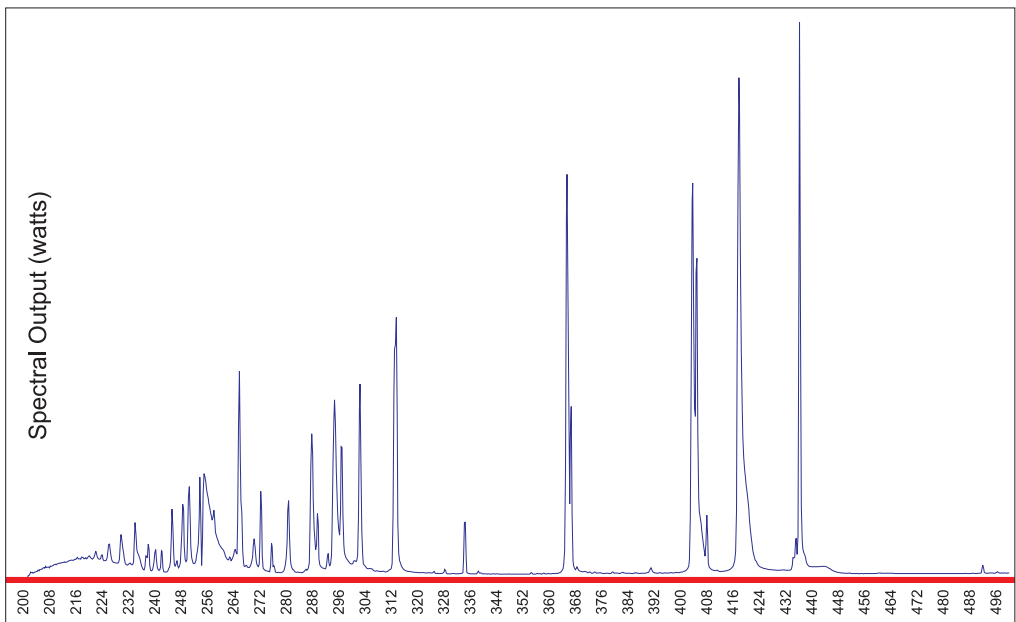
be clear. Therefore, the shortwave UV will cure the top surface of the material while the longwave UV will penetrate into the depths of the material to cure through to the adhesion layer at the substrate. It is important to note that the photoinitiator is the component in all UV curable formulations that absorb the UV light and cause the material to cure.

The absorption response of the photoinitiator is also a measure of its photo activity. Obviously, in order to achieve efficient curing, it is important to match the spectral output of the lamp to the absorption response of the photoinitiator as well as the absorption characteristics of the complete formulation. It would not be desirable to cure thick pigmented coatings/inks with a Hg lamp. However, because the Hg bulb is rich in the shortwave UV range, this bulb would be an excellent match for clear coatings that are formulated with a photoinitiator (such as Benzophenone) that has excellent absorption in the shortwave UV range and some absorption at 365 nm.

Curing inks with a Hg bulb can be viable in applications where the ink is applied in extremely thin layers, such as inkjet printing or some flexo-offset printing.

Gallium Additive Spectral Distribution

The graph at the right displays the distribution of light radiated from a medium pressure Mercury vapor lamp with a Gallium additive. The Gallium is vaporized along with the Hg and reaches a plasma state. Some of the UV light output comes from the Hg and some from the Gallium. While Hg emits most of its radiant output in the shortwave UV, the Gallium has strong output in the longwave range between 405 and 440 nm. Consequently, applications that require UV output which is rich in the 405-440 nm range will be an excellent match for the Gallium additive lamp. One example is curing white pigmented inks, which contain titanium dioxide, the typical pigment of choice for white inks. TiO₂ absorbs most UV (200-450 nm) but reflects most visible light (450-700 nm). However, there is a small range in this material where light can penetrate (between 400-430 nm). If the Gallium additive lamp is used, white inks can be cured quite effectively. Other practical



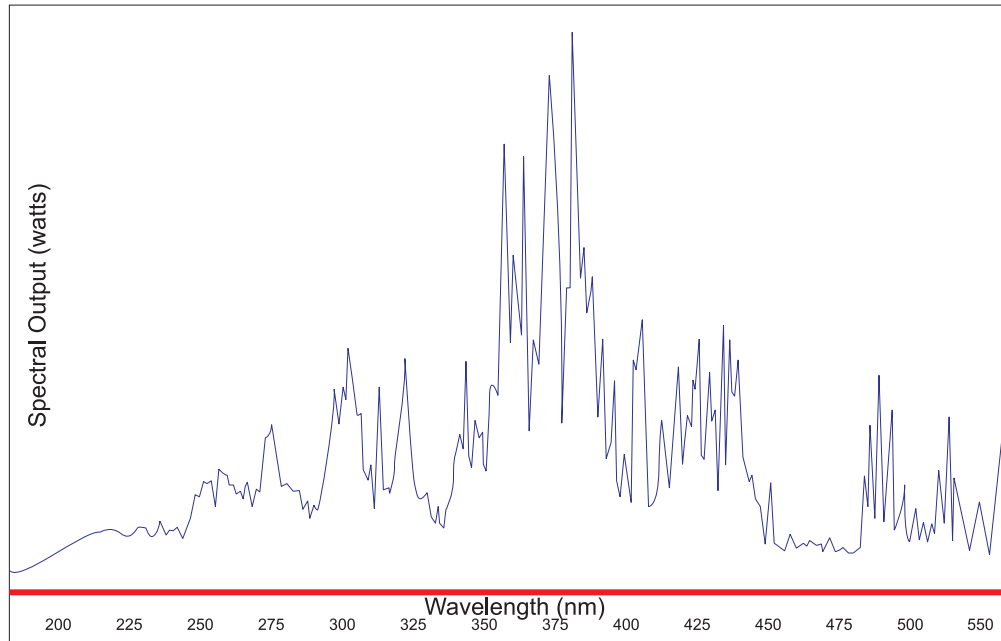
applications for the Gallium lamp are ones where very deep penetration of light is required, such as when making eye glass lens molds which may require up to 1 inch of complete through-cure. The long wavelengths of radiant energy will penetrate much more effectively than the shorter wavelengths, and make it possible to achieve good cure into the thick depths of materials.

For both examples above, it is vital for the ink or resin formulations to include photoinitiators with good absorption in the 405-440 nm range in order to make the Gallium additive lamp a good choice and viable for these applications.

Iron Additive Spectral Distribution

The graph at the right displays the distribution of light radiated from a medium pressure Mercury vapor lamp with an Iron additive. The Iron is vaporized along with the Hg and reaches a plasma state. Some of the UV light output comes from the Hg and some from the Iron. While Hg emits most of its radiant output in the shortwave UV, the Iron has strong output in the longwave range between 320 and 400 nm. The longwave UV is particularly important when curing optically opaque materials such as heavily pigmented screen printing inks.

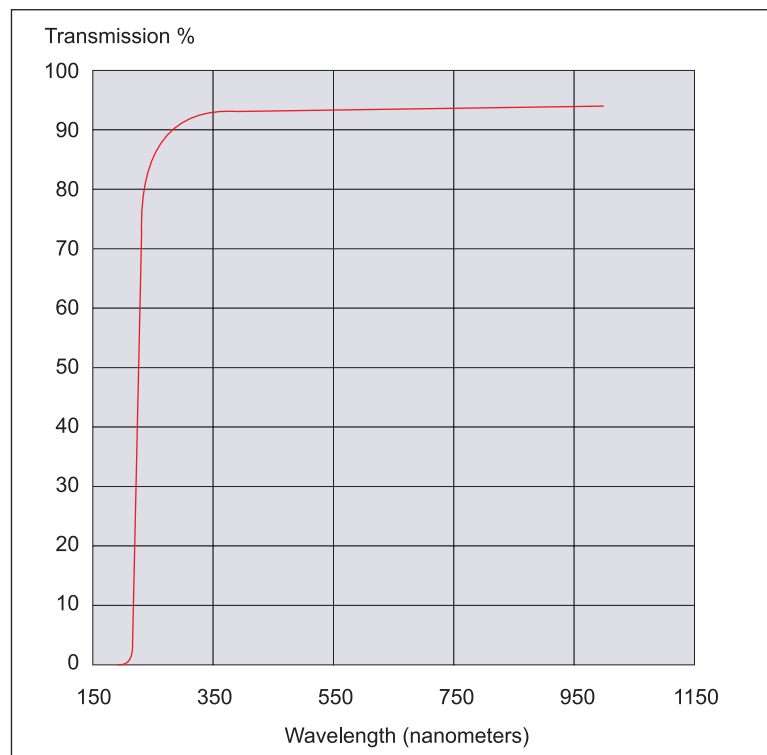
Most inks, especially the darker ones such as black, blue, green, and red are extremely absorptive in the short-to-medium wavelength range (up to about 300 nm), but have good transmission in the longer wavelength range (above 320 nm). Consequently, most heavily pigmented inks and coatings are formulated with long wavelength photoinitiators, and are cured very effectively with the Iron additive lamp.



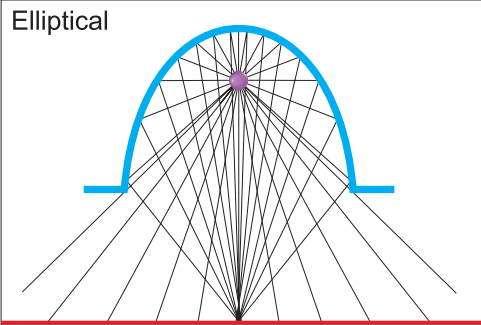
Ozone-Free UV Lamp Characteristics

“Ozone-Free” or “Germicidal” quartz tubing transmits UV-A and UV-B while blocking the deep, high energy wavelengths that cause ozone generation and pose the greatest exposure risks. Ozone-free quartz transmits the 253.7 nanometer mercury emission very efficiently, making it an ideal material for disinfection applications and various other UV treatments.

“Excess ozone present in the work environment may also present some health hazards. If inhaled, it can cause nausea, vomiting, headaches, and other “flu-like” symptoms. In applications where the lamp cooling air is discharged into the work environment, it is desirable for ozone free lamps to be used to prevent any such negative health related problems from occurring. Whenever possible, however, the best solution is to install the UV equipment and its ventilation so that the lamp cooling air is ducted to the outside of the building to exhaust the ozone and hot air away from all personnel, which negates the need for an ozone free UV lamp.”



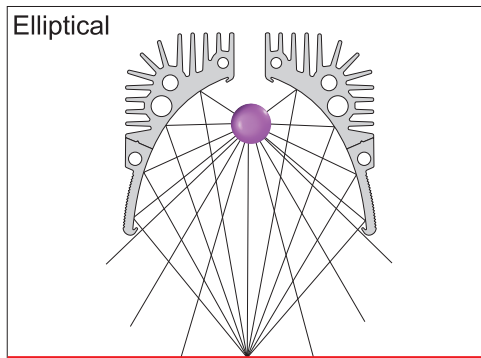
Elliptical



The elliptical reflector is used in microwave powered (electrodeless) UV curing lamp systems. The metallic reflector and screen positioned over the open end (not shown) form an electrically enclosed chamber to seal the RF cavity. Slots in the reflector allow RF to penetrate the cavity and energize the bulb. Holes are strategically punched into the reflector to allow positive pressure air cooling to the bulb. The reflector profile is half of a perfect ellipse. The bulb is positioned inside the RF cavity at one focal point of the elliptical reflector resulting in a highly focused light source. About 75% of the light rays radiated from the bulb will strike the reflector and reflect down to the focal plane, where the rays converge into a narrow line of light resulting in a very high peak irradiance (or intensity) of light at the focal plane. The focal plane distance, which is typically the cure zone, is 53 mm from the bottom of the lamp housing. This type of highly focused light source is most beneficial when used in processes which require high speed dynamic curing (above 300 fpm), such as curing inks, silicone release coatings, or clear hard coatings on plastic or paper webs. Another common application that benefits from the use of this reflector is curing through a

physically thick layer of chemistry as well as optically thick materials, such as heavily pigmented offset and screen inks that inherently absorb or block photons (light particles) over a wide range of the UV spectrum. It is Beer's Law of Physics that essentially says the greater the irradiance, the better the depth of cure. At distances beyond the focal plane, the light rays will continue to diverge outward, which will broaden the exposure area at lower irradiance levels. The many diverging light rays are ideal for exposing/curing the hard-to-reach areas of complex 3-D objects in the far-field (greater than 10 inches from the lamp), such as automotive plastic headlamp lenses and

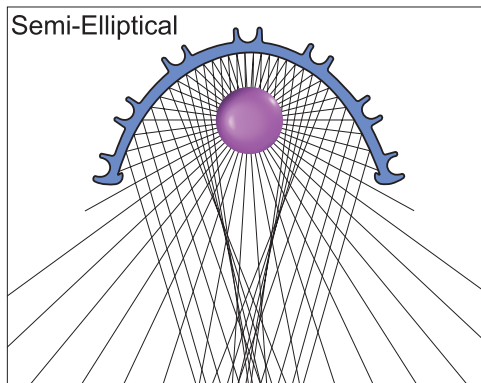
Elliptical



The elliptical reflector is used in "arc" lamps, which are UV curing lamps that are powered by an electric current passing between two high voltage electrodes. As in reflector #1, the reflector profile is half of a perfect ellipse. This reflector configuration will also focus about 75% of the light rays radiated from the bulb to the focal plane, which is typically located about 50-55 mm below the bottom of the lamp housing. This configuration will produce a high peak irradiance of light at the focal plane, which is most beneficial for processes that require high speed curing or efficient depth of cure through physically thick or optically thick materials. Some common applications are curing screen, gravure, or flexo offset inks/coatings on high speed printing presses. At distances beyond the focal plane, the light rays will continue to diverge outward, which will broaden the exposure area at lower irradiance levels. The diverging light rays are ideal for exposing/curing the hard-to-reach areas of complex 3-D objects in the far-field (greater than 10 inches from the lamp), such as automotive headlamp lenses and reflectors. This reflector assembly is constructed of two mirroring halves which pivot open and closed like a "clam shell," and is commonly referred to as a "clam shell" style shutter. Shuttering the reflector open and closed will allow a process to stop and start without requiring the lamp to be turned on and off. This minimizes nonproductive

start-up time during set-up and production, and prolongs lamp life. Each half of the shutter is an aluminum extrusion which captivates a reflector liner on the inside elliptical surface. The fins located on the back side of the shutter allow for efficient air cooling of the shutter/reflector. The bulb and shutter/reflector are typically air cooled with negative air pressure where the air is sucked through the gap between the two mirroring halves.

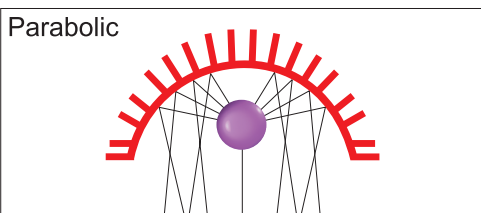
Semi-Elliptical



The semi-elliptical reflector is commonly used in "arc" lamps. The shape of this reflector is not quite a perfect ellipse like the above two. Therefore, the optical affects are slightly different. Depending on its "wrap angle" around the bulb, typically about 60-75% of the light radiated from the bulb is collected by the reflector and reflected down toward the work surface to expose a slightly wider area compared to the sharply focused pure elliptical reflector above. The result at the focal plane is a high-irradiance field that has a lower peak irradiance compared to that of a pure elliptical reflector, but a wider optimum irradiance exposure area. However, at distances greater than about 5 inches from lamp to substrate, this semi-elliptical reflector can produce higher irradiance levels than the pure elliptical reflector, which makes this reflector ideal for exposing/curing 3-D objects in the far-field. This reflector configuration is also used in applications that require high speed dynamic curing, but it may not (in some cases) cure as fast or efficiently as the pure elliptical reflector because of its inherently lower peak irradiance. Alternatively, in applications that are not peak irradiance sensitive (such as thin layers of clear varnish, silicone release coatings, or PSAs applied to plastic or paper webs), it is likely that this semi-elliptical reflector will cure faster than a pure elliptical reflector because of its wider high-irradiance exposure field at the focal plane, which increases the exposure time of the material

in the high-irradiance field. Additionally, the semi-elliptical reflector is also used to cure physically and optically thick inks, coatings, and adhesives. However, it may not cure as efficiently as the pure elliptical reflector because its lower peak irradiance would reduce its light penetration into the depths of the material. This reflector can be used in a rotating-shutter UV lamp system or a non-shuttered UV system. It is typically constructed of extruded aluminum with a reflector liner attached on the inside surface. The fins located on the back side of the reflector/shutter exist for attaching copper tubing which enables the lamp to be cooled with water. Alternatively, slots can be machined in the reflector to provide for efficient air cooling.

Parabolic

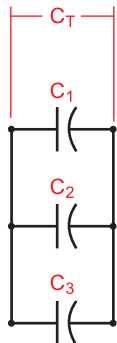


The parabolic reflector is used in "arc" lamps. The optical properties of this reflector geometry are vastly different compared to the elliptical reflector. The bulb is positioned at the focal point of the parabola, which causes the light rays that are collected by the reflector to virtually collimate straight down toward the work surface. The result is a cure zone that provides a relatively low and uniform irradiance field across the width of the parabolic profile, which is typically 3 to 4 inches. The parabolic reflector is used in applications where high irradiance is not required for curing. Additionally, this reflector is ideal when curing objects in a static mode (like on an indexing machine), where the exposure area is up to 4 inches wide. It is not recommended to use this reflector to cure heavily pigments inks. Finned extrusion allows for efficient air cooling.

Capacitor Calculations

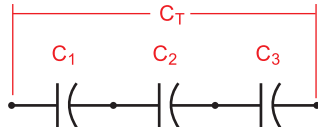
Parallel Capacitors

$$C_T = C_1 + C_2 + C_3$$



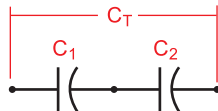
Series Capacitors

$$C_T = \frac{1}{\frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3}}$$



Two Capacitors

$$C_T = \frac{C_1 \times C_2}{C_1 + C_2}$$



Lamp Power Calculations

EXAMPLE

Voltage	480 vac
Watts/in.	400
Arc length	50"
Lamp qty.	6

Kilowatt Calculation

Total Power (KW) =
 Arc length x lamp qty. x wattage factor
 Example: Total Line Power (KW) =
 50 X 6 X 0.465 = 139.5

KVA Calculation

KVA = KW X 1.07
 Example: KVA = 139.5 X 1.07 = 149

Wattage Factors

200W/in.	= 0.234
300W/in.	= 0.341
400W/in.	= 0.465
600W/in.	= 0.698

Amperes Calculation

Amps = (KW X 1000 X 0.60) / Voltage
 Amps = (139.5 X 1000 X 0.60) / 480 =
 174.38

* These calculations are based upon constant wattage power supplies operating at 92% efficiency. These calculations are close approximations and should only be used as such.

Air Flow Duct Size Calculations

☆ To determine the recommended discharge duct size, use the following formula:

$$D = 2 (\sqrt{.023 \times \text{CFM}})$$

D=Diameter in Inches
 CFM=Cubic Feet per Minute

Example: You are planning to operate a lamp system which is exhausting 966 CFM

$$D = 2 (\sqrt{.023 \times 966})$$

$$D = 2 (\sqrt{22.218})$$

$$D = 2 (4.713)$$

$$D = 9.42$$

Use the nearest standard duct size (10")

Heat generated from Lamp Ballast

☆ To determine the BTU/Hr. from a constant wattage ballast

$$\text{BTU/HR} = \frac{(\text{KWb} \times .06)}{.293}$$

Where KWb = Ballast KW rating

Power ballasts have a maximum temperature limit of 160° C (320° F). The ballast reaches its maximum temperature after about 6 hours of continuous operation. When the power supply is turned off, the ballast holds much of the heat and can radiate this heat for some time, causing ambient temperatures to rise significantly if not properly cooled. The manufacturer's recommendation is to continue to cool the ballast for at least 2 hours after turning off the ballast, thus reducing the chances of exceeding capacitor tolerances and other components within the power cabinet.

Metric Watts

60w/cm	= 150w/in.
80w/cm	= 200w/in.
120w/cm	= 300w/in.
160w/cm	= 400w/in.
195w/cm	= 500w/in.
240w/cm	= 600w/in.

Fractional Inch, Decimal and Millimeter Equivalents

Fractional Inch	Decimal Inch	Millimeter	Fractional Inch	Decimal Inch	Millimeter	Fractional Inch	Decimal Inch	Millimeter	Fractional Inch	Decimal Inch	Millimeter
1/64	0.0156	0.397	17/64	0.2656	6.747	33/64	0.5156	13.097	49/64	0.7656	19.447
1/32	0.0313	0.794	9/32	0.2813	7.144	17/32	0.5313	13.494	25/32	0.7813	19.844
3/64	0.0469	1.191	19/64	0.2969	7.541	9/16	0.5469	13.891	51/64	0.7969	20.241
1/16	0.0625	1.588	5/16	0.3125	7.938	35/64	0.5625	14.288	13/16	0.8125	20.638
5/64	0.0781	1.934	21/64	0.3281	8.334	37/64	0.5781	14.684	53/64	0.8281	21.034
3/32	0.0938	2.381	11/32	0.3438	8.731	19/32	0.5938	15.081	27/32	0.8438	21.431
7/64	0.1094	2.778	23/64	0.3594	9.128	39/64	0.6094	15.478	55/64	0.8594	21.828
1/8	0.1250	3.175	3/8	0.3750	9.525	5/8	0.6250	15.875	7/8	0.8750	22.225
9/64	0.1406	3.572	25/64	0.3906	9.922	41/64	0.6406	16.272	57/64	0.8906	22.622
5/32	0.1563	3.969	13/32	0.4063	10.319	21/32	0.6563	16.669	29/32	0.9063	23.019
11/64	0.1719	4.366	27/64	0.4219	10.716	43/64	0.6719	17.066	59/64	0.9219	23.416
3/16	0.1875	4.763	7/16	0.4375	11.113	11/16	0.6875	17.463	15/16	0.9375	23.813
13/64	0.2031	5.159	29/64	0.4531	11.509	45/64	0.7031	17.859	61/64	0.9531	24.209
7/32	0.2188	5.556	15/32	0.4688	11.906	23/32	0.7188	18.256	31/32	0.9688	24.606
15/64	0.2344	5.953	31/64	0.4844	12.303	47/64	0.7344	18.653	63/64	0.9844	25.003
1/4	0.2500	6.350	1/2	0.5000	12.700	3/4	0.7500	19.050	1	0.1.000	25.400

Air flow guidelines at 7" static pressure

Arc	200wpi	300wpi	400wpi	600wpi
06	69	102	138	210
08	92	136	184	280
10	115	170	230	350
12	138	204	276	420
14	161	238	322	490
16	184	272	368	560
18	207	306	414	630
20	230	340	460	700
22	253	374	506	770
24	276	408	552	840
26	299	442	598	910
28	322	476	644	980
30	345	510	690	1050
32	368	544	736	1120
34	391	578	782	1190
36	414	612	828	1260
38	437	646	874	1330
40	460	680	920	1400
42	483	714	966	1470
44	506	748	1012	1540
46	529	782	1058	1610
48	552	816	1104	1680
50	575	850	1150	1750
52	598	884	1196	1820
54	621	918	1242	1890
56	644	952	1288	1960
58	667	986	1334	2030
60	690	1020	1380	2100
62	713	1054	1426	2170
64	736	1088	1472	2240
66	759	1122	1518	
68	782	1156	1564	
70	805	1190	1610	
72	828	1224	1656	
74	851	1258		
76	874	1292		
78	897	1326		
80	920	1360		
82	943	1394		
84	966	1428		
86	989	1462		
88	1012	1496		
90	1035	1530		
100	1150	1700		
110	1265	1870		

Duct size formula

To determine the recommended discharge duct size, use the following formula:

$$D = 2 (\sqrt{.023 \times \text{CFM}})$$

EXAMPLE:

You are planning to operate a 42" lamp at 400w/in. Using the chart, the CFM value is 966.

$$D = 2 (\sqrt{.023 \times 966})$$

$$D = 2 (\sqrt{22.218})$$

$$D = 2 (4.713)$$

$$D = 9.42$$

The nearest standard duct size would be 10"

Ducting guidelines

- Use 45° elbows instead 90° elbows whenever possible.
- Try not to exceed 20' from the Blower to the roof or exit.
- Use at least 1 ½ times the outlet blower diameter for exhaust duct diameter.
- Never combine the exhaust of the UV Blower into a common plenum used by other equipment. Overheating may result.
- The recommended length of Flexible Hose should not exceed 8 feet. The hose should be kept short, and as straight as possible for maximum efficiency.

