The Hydrel M9000
The Best Solution to In-grade Lighting

M9000 Series
Three sizes cover a wide range of in-grade lighting applications.

The versatility of the M9000 Series makes it perfect for illuminating everything from high traffic pedestrian areas to groves of tall trees.

Soft, even light penetrates to the top branches of this majestic oak. A single M9000 Series wall wash placed under an open structured tree can effectively highlight the highest outermost foliage without hot spots.
A row of M9400 Series with 70 Watt metal halide lamps illuminates patio seating and surrounding shrubbery at a college art gallery. Low lens temperatures and rugged construction are key M9400 Series attributes.

A series of M9700 100 Watt metal halide fixtures illuminate a row of panels in a park. Medium spot distribution, low profiles, and cool lens temperatures are required.

This county courthouse uses M9700s with 175 Watt metal halide wall wash on the buildings and 100 Watt metal halide floods on the trees.

At the exclusive Venetian Hotel in Las Vegas M9400s, M9700s, and M9800s are employed to illuminate a variety of statues, columns, and arches. Spots are the distribution of choice with 70 Watt metal halide in the M9400s and 100 Watt metal halide in the M9700s.

Safety First!
Low surface temperatures generated by M9000 double lens models make them ideal for safely lighting areas with high pedestrian activity.

A row of M9400 Series with 70 Watt metal halide lamps illuminates patio seating and surrounding shrubbery at a college art gallery. Low lens temperatures and rugged construction are key M9400 Series attributes.

Hydrel was chosen as the preferred in-grade fixture because of its advanced aiming capabilities, low lens temperatures, and pleasing aesthetics.

Support columns and arches at this California retail center are lighted with 100 Watt metal halide fixtures with spot distribution. High pedestrian traffic requires low profile units with low lens temperatures.
M9000 Series - Best for a Reason

Today’s M9000 Series is the result of constant improvement and refinement of the original 9000 Series. Below, several reasons why the M9000 Series is an industry standard.

Cool Operation / Cool Lens

A major challenge in the design of in-grade fixtures is the removal of heat to protect components and provide lower lens temperatures.

Convective Cooling  Conventional sealed fixtures depend only upon conduction and radiation for cooling. The 9000 Series with its vented doors pioneered convection cooling as well.

The M9000 Series improves on the convective cooling process by adding air-flow channels in the wall of the rough-in section. Air-flow channels greatly improve ambient air circulation around the power and lamp modules, delivering cool air deep into the rough-in section. When cool ambient air draws heat from the modules, the warmed air escapes through door vents at the top of the rough-in section. Typically, M9000s operate 30° to 40° cooler than competitive products.

Double Lens Technology  The M9000 Series double lens models provide an insulating layer of air for additional cooling. When the potential exists for direct human contact with lenses, care is required to protect pedestrians from injury. The M9000 Series Double Lens models ensure lower surface temperatures by using two separate lenses with cool air circulating between them.

Double lens technology - upper lens is cooled by an insulating layer of air circulating between the two lenses.

Patented Modular Flo-Thru Technology

**Modular** - M9000 lighting components are self-contained watertight modules.

**Flo-thru** - in ground containers (rough-in sections) are designed to let water flow through and run out the bottom.

Hydrel’s M9000 Series are the only in-grade lights not dependent upon sealing the outer housing to protect lighting components inside.

M9000 lighting component modules are so impervious to water that it’s unnecessary to seal the rough-in section. Lens doors on all M9000s are easy to open and close, never need sealing, and are vented for air cooling within the container. The lamp module lifts out and unplugs - relamp offsite, away from the dirt. Installation and maintenance become simpler tasks.

M9000 Series single lens models offer high lighting efficiency with simple, optical aiming.

M9000 Series double lens models provide an insulating layer of air for additional cooling.
**Easy Aiming**

The M9000 Series refines both the mechanical and optical aiming process. Keyed components allow maintenance and relamping to be accomplished without reaiming.

Fixture aiming is a critical element to many projects and designers are concerned with the methods to accomplish it. The original 9000 Series combined optical and mechanical aiming. The new M9000 refines the process by introducing an aimable module along with keyed components to lock-in or reproduce settings.

The original 9000 Series offered simple aiming by the use of active lenses (optical aiming) and module rotation. In addition to the standard rotational indexing and locking feature, the new M9000 Series offers the option of aiming the lamp module itself with a locking tilt mechanism. The lamp module is located below a second sealed lens in the rough-in section.

In summary, the M9000 Series offers two lockable aiming options:

- **Optically Aimed** – active lenses and lamp module rotation
- **Mechanically Aimed** – lamp module tilting and lamp module rotation

Both options include Aim-Lock® indexed and locking components to allow relamping and maintenance without reaiming.

**Wide Range**

At 400 Watts HID, the M9000 is the most powerful in-grade light in the industry.

The M9000 has a range of 32 Watts to 400 Watts in a variety of lamp types from fluorescent to HID. The largest of the M9000 Family, the M9800 Series, is the only in-grade fixture in the industry to accept mogul and E40 base 400 Watt HID lamps. As the most powerful in-grade light ever, the M9800 Series provides a new alternative for floodlighting architectural structures with in-grade concealment.

**Rugged Construction/ Superior Drive-over Capability**

The M9000 Series incorporates the best materials available for each function.

Lamp modules are constructed of high grade stainless steel and covered with a high emissivity coating. Lenses are tempered borosilicate glass for toughness and clarity. Ballasts and transformers are encapsulated in a heat dissipating epoxy with strengthened ribs. Non-corrosive polymeric junction boxes are molded in place for trouble-free operation.

Rugged materials and construction for superior drive-over capability.

Rough-in sections use strong, heat resistant polymeric material. Lamp module support rings allow for drive-over strength in excess of normal auto, truck, and tractor weight requirements.
M9000 Series - A Family of In-grade Performers

M9000 Series

The **M9000 Series** is an advanced version of the original 9000 Series introduced by Hydrel in 1990. Below is a brief overview of its features and benefits.

- **Patented Modular / Flo-thru Design**
  - exclusive to Hydrel
  
  *Hydrel’s M9000 is the only in-grade line that does not require resealing at ground level.* The patented modular design provides a removable module which can be relamped in a dry, controlled atmosphere.

- **Increased Range** - A family of three in-grade lights, 9 to 18 inches in diameter, with lighting capacities spanning 32 to 400 Watts.

- **Cooler Operating** - Convection cooling is made possible by air circulation within the container. 30° - 40° cooler operation is achieved through improved convective cooling and the double lens option.

- **Highest IP Rating** - Hydrel offers the highest protection against moisture intrusion in the industry.

- **Simpler Installation** - Pre-installed rough-in sections, plug together modules, and a two-fastener locking door make installation 50% faster.

- **Easy Maintenance** - Lamp modules are easily removable to off-site locations for relamping and thereby are easily purged of moist air to end condensation problems.

- **Easy Aiming** - Indexed and locked components allow relamping without reaiming. Aim mechanically and optically without entering the lamp module.

- **Architectural Aesthetics** - Smaller footprint and more door choices.

- **Rugged Construction** - Improved design and materials to surpass drive-over requirements.

* See page 8 for a more complete story of Modular / Flo-thru Design and other original Hydrel 9000 Series innovations.

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**The M9400**

70 Watts, 9” Diameter

At just 9 inches in diameter, the M9400 is the smallest in-grade modular fixture accepting color corrected metal halide lamps.

Up to 70W, MH in spot, flood, and wall wash distributions. With a footprint only 9 inches (230mm) in diameter.

The M9400 offers a unique rough-in section that includes an integral power supply compartment in an “L” configuration designed to accommodate encapsulated power supplies for color corrected metal halide lamps.

A cylindrical rough-in section accepts lamps up to 32 Watt fluorescent or up to 75 Watt incandescent and quartz for wall wash, spot, and flood applications.

Please refer to page 18 for M9400 ordering information.
The workhorse of the group, the popular sized M9700 features a wide variety of distributions with internal glare control and filtering plus an assortment of safety and light control accessories.

Up to 175W, MH in spot, flood, and wall wash distributions with a 12 inch (305mm) diameter footprint.

The mid-size M9700 HID with keyed modular components: door, rough-in section, lamp module, and power supply.

The M9700 covers the midrange of this versatile family of in-grade lights and promises to be the most versatile. Rated at 175 Watt maximum HID, it will handle a wide range of lighting tasks.

The M9800 is the only in-grade fixture to accept mogul and E40 based 400 Watt HID lamps.

Up to 400W, MH, HPS in spot, flood, and wall wash distributions, with an 18 inch (460mm) footprint.

The M9800 accepts mogul and E40 based lamps to 400 Watts for wall wash, spot, and flood applications. It opens the door to new options for floodlighting architectural structures by greatly reducing the visibility of the fixture, an aspect often objectionable to designers.

Please refer to page 19 for M9700 ordering information.

Please refer to page 20 for M9800 ordering information.
M9000 Series – Wide Range Performance

Test lighting on an eight-story wall (below), demonstrates the wide range of M9000 Series capabilities ranging from 32 Watts fluorescent to 400 Watts HID.

A 9 inch (230mm) footprint M9420, MH70 tight spot, provides high illumination from a low wattage fixture with excellent color for a variety of applications.

The M9410, FL32 fluorescent, medium flood is an efficient fixture for rows of bushes, small landscapes, and multiple small architectural features.
The M9400 Series is ideal for small landscapes, rows of small trees or shrubs, and small architectural features.

The low surface temperature generated in a double lens M9700 or M9800 using a 100Watt HID lamp makes it an excellent option for an area high in pedestrian activity.

Above, M9700s equipped with 70Watt HPS lamps in wide flood distribution illuminate the sandstone facades of the famous Royal and Ancient Golf Club at St Andrews, Scotland. These Hydrel double lens luminaires were chosen for their low lens temperature and excellent pedestrian protection capabilities.

The M9400 Series is ideal for small landscapes, rows of small trees or shrubs, and small architectural features.
Hydrel In-grade Lighting

How the unique and innovative 9000 Series in-grade lights came into being. Why they remain unmatched even today!

In 1990, Hydrel revolutionized in-grade lighting design by combining underwater lighting technology and modular design to create flow-thru, in-grade containers featuring easily removed, sealed lamp modules and newly developed small efficient lamps – thus launching a cutting edge series of in-grade lights: the celebrated 9000 Series. Even today, Hydrel M9000 Series are the only in-grade fixtures that do not depend on a watertight shell to protect lighting components.

UNDERWATER LIGHTING TECHNOLOGY

Most in-grade fixtures depend upon a watertight shell to protect vulnerable lighting components within. Keeping water out is a formidable task, especially when the shell has to be accessed regularly for maintenance. Moisture within the shell means disaster when corrosion attacks electrical components. Hydrel solved the moisture problem by drawing on its nearly forty-year experience in underwater lighting. A new kind of in-grade fixture was conceived – the M9000 Series, based on underwater lighting technology.

UNDERWATER DESIGN AND THE MODULAR CONCEPT

Sealed lighting components, similar to those used in pools and fountains, inspired the idea behind the M9000 in-grade light. A polymeric, non-corroding, in-grade container features a built-in watertight junction box, sealed watertight lamp module, and an epoxy-encapsulated watertight power supply module, all linked by plug-together underwater-rated cables and connectors. Everything within the container is watertight!

MODULAR DESIGN AND THE FLOW-THRU CONCEPT

Once the lighting component modules are totally watertight, a watertight shell to protect them is no longer necessary. Flow-thru design means that no attempt is made to keep water out of the container. If water runs in, it flows through to drain out the bottom, or simply evaporates.

IMPROVED PHOTOMETRICS

Smaller more efficient lamps combine with an array of precision reflectors and optically active lenses. The M9000 Series reaches photometric performance levels never before achieved by in-grade lighting fixtures.
Significant Hydrel Innovations

Hydrel’s innovations have created a world of difference in architectural and landscape lighting. New photometric performance levels, modular flow-thru technology, and watertight lighting components combine to provide in-grade lighting users with remarkable performance. Listed below are some of the most important innovations.

**Cooler Operation**

Vented door allows air to flow into the rough-in section to cool the sealed modular lighting components. Other in-grade fixtures must be tightly sealed and cannot take advantage of cool air ventilation.

**Double Lens Technology**

Double lens models provide an insulating layer of air for additional cooling. Two separate lenses with cool air circulating between them ensure lower surface temperatures.

**Flow-thru Technology**

Sealed modules inside the container are impervious to moisture penetration. There is no concern for water entry. If water runs in, it simply evaporates or drains out the bottom of the rough-in section.

**Better Optical Performance**

High performance wall wash lenses give a wide, even, oval light pattern. Before the 9000 Series, effective wall wash took nearly twice the number of fixtures.

**Light Where You Want It**

Smaller, efficient lamps of today combined with Hydrel’s advanced precision reflectors offer state-of-the-art performance. Increased reflector-to-source area ratios provide increased light control, and I.T.L. reports efficiencies to 85%.

**Easy Aiming and Aim-Lock™ Technology**

Use both mechanical and optical aiming techniques for aiming versatility. Aim-Lock™ technology features components indexed and locked to allow relamping and maintenance without reaiming.

**Lamp Module / Goodbye Condensation**

Relamp at your work station, not out on site, in the dirt. The sealed lamp housing can easily be taken from the container to a clean, accessible area for relamping or maintenance. High-performance seals and dry air purging eliminate condensation.

**Rough-in Section**

A major development with flow-thru technology is the rough-in section. The rugged corrosion-resistant section can be set in place during construction and await final installation of sensitive lighting components.
Simple Maintenance

Relamping may be done away from hostile on-site conditions in a clean, dry environment.

**The Hydrel way**
The Hydrel M9000 lamp module is easy to remove and take to a controlled environment for service. **No need to relamp and reseal M9000 fixtures under difficult conditions.**

**The Hydrel way**
Condensation, the bane of in-grade lighting for years, is not a problem. Seals developed for underwater lighting and dry air purging ensure that the presealed watertight lamp modules contain only dry air—**dry air does not support condensation.**

**The Hydrel way - prevents condensation**
Dry air purge is maintained during relamping by removing the lamp module to a low humidity location for lamp changing. The Lamp Module is sealed by a clamp ring which is easily released to access the lamp. Resealing the lamp module in the low humidity of the air conditioned space prevents condensation in the module when it is returned to the outdoor site.

**Relamping Made Simple:**

1. **Remove locking door.**
2. **Lift lamp module from rough-in section.**
3. **Unplug lamp module.**
4. **Take to a clean, dry place. Replace lamp.**
Easy Installation

Installation time is reduced by 50% as compared to the competition. Operating components are protected from construction site damage.

Rough-in sections prevent construction site abuse of critical lighting components
A major benefit of the modular, flow-thru technology is the rough-in section.
The rugged corrosion-resistant container can be set in place during construction to await later installation of lighting component modules.

Pre-shipped rough-in section installed on-site
The innovative rough-in section offers installation simplicity.
Above, wired in place in a concrete pour form, a rough-in section with conduit connections completed and temporary cover in place awaits concrete pouring.

Installation time reduced by half
Once construction is finished, the temporary cover is removed. The sealed lamp and power modules are installed. The door attaches with two simple fasteners.

Hydrel’s M9000 Series are the only in-grade fixtures that do not require sealing at ground level. The patented modular design provides a removable module which can be relamped in a controlled atmosphere.

5 Replace lens and gasket. Hand tighten clamp ring.
6 Return lamp module to site and reconnect lamp module.
7 Replace lamp module in rough-in section.
8 Secure with locking door.
Rough-In Installation

Rough-in section Installation
As illustrated, the rough-in section is retained in-grade by various methods in a variety of substructures.

Rough-in section - How it works
During the construction phase of a project, the rough-in section can be preinstalled on site. Lens, lamp, and power modules, which could be vulnerable to construction damage are not installed at this time. Wrapped in protective plastic, the tough engineered polymer rough-in section is placed flush to grade over the conduit in base material which has been prepared for drainage. When construction is completed and wiring pulled, the rough-in section sheds its protective shrink wrap and stands ready to receive its lighting modules.

Soils
The M9000 Series eliminates the normal concern of burying metal fixtures in alkaline and acidic soils, in areas of heavy fertilizer use, or in salt air environments. Hydrel’s advanced polymer materials provide for a long life in all environments.

Safety
All fixtures must be grounded in accordance with local electrical codes and the National Electric Code. It is recommended that the junction box splice compartment be sealed with re-enterable potting compound. Consult with Hydrel’s technical support for application ideas and safety recommendations for in-grade products.

In applications where flow-through drainage is not permitted, as in a multi-level parking structure, the flo-thru drain holes in the bottom of the rough-in-section can be sealed. Consult Hydrel technical support for details.
Accessories/Options

**Installation Accessories**

- BTR Trim Ring, Polished Brass
- STR Trim Ring, Stainless Steel
- RG Rock Guard, Bronze or Aluminum
- LC Polycarbonate Protective Cover

**Safety Accessories**

**Light Control Accessories**

- GS Glare Shield, Bronze or Aluminum
- IHL Honey Comb Louver
- WWL Wall Wash Louver
- ISS Internal Source Shield
- FLC 5 5° Axial Spread Lens
- FLC 10 10° Tilt Lens
- FLC 20 20° Tilt Lens

**Door Material Options**

- BBP Perforated Door - brass perforations on bronze
- BSP Perforated Door - stainless perforations on bronze
- ASP Perforated Door - stainless perforations on aluminum
- A Aluminum Door
- B Bronze Door
- SS Stainless Steel Door* "listed under “Accessories”"
**Application**

### M9400 SERIES

#### WALLS and BUILDINGS

For light colored, smooth concrete walls:

<table>
<thead>
<tr>
<th>Wall height</th>
<th>Fixture</th>
<th>Spacing</th>
<th>Set back</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'</td>
<td>M9410 18TRT WWD</td>
<td>6'</td>
<td>1'</td>
</tr>
<tr>
<td>6'</td>
<td>M9410 26TRT WWD</td>
<td>6'</td>
<td>1'</td>
</tr>
<tr>
<td>10'</td>
<td>M9410 32TRT WWD</td>
<td>6'</td>
<td>1'</td>
</tr>
</tbody>
</table>

#### COLUMNS

For light colored, smooth concrete columns:

<table>
<thead>
<tr>
<th>Column height</th>
<th>Fixture</th>
<th>Set back</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'</td>
<td>M9410 35CMT6 SP</td>
<td>1'</td>
</tr>
<tr>
<td>6'</td>
<td>M9410 35CMT6 SP</td>
<td>1'-2'</td>
</tr>
<tr>
<td>10'</td>
<td>M9410 70CMT6 SP</td>
<td>1'-2'</td>
</tr>
</tbody>
</table>

#### SIGNS

For small to medium ground mounted signs:

<table>
<thead>
<tr>
<th>Sign dimensions (square)</th>
<th>Fixture</th>
<th>Set back</th>
</tr>
</thead>
<tbody>
<tr>
<td>2'-3'</td>
<td>M9410 P3035CM MFL</td>
<td>1'</td>
</tr>
<tr>
<td>3'-4'</td>
<td>M9410 P3035CM MFL</td>
<td>1'-2'</td>
</tr>
<tr>
<td>4'-5'</td>
<td>M9410 P3075CM MFL</td>
<td>2'-3'</td>
</tr>
</tbody>
</table>

### M9700 SERIES

#### WALLS and BUILDINGS

For light colored, smooth concrete walls:

<table>
<thead>
<tr>
<th>Wall height</th>
<th>Fixture</th>
<th>Spacing</th>
<th>Set back</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'</td>
<td>M9710 70M WWD</td>
<td>10'</td>
<td>1'</td>
</tr>
<tr>
<td>6'</td>
<td>M9710 100M WWD</td>
<td>10'</td>
<td>1'-2'</td>
</tr>
<tr>
<td>10'</td>
<td>M9710 175M WWD</td>
<td>1'-2'</td>
<td>1'-2'</td>
</tr>
</tbody>
</table>

#### COLUMNS

For light colored, smooth concrete columns:

<table>
<thead>
<tr>
<th>Column height</th>
<th>Fixture</th>
<th>Set back</th>
</tr>
</thead>
<tbody>
<tr>
<td>10'</td>
<td>M9710 35CMT6 SP</td>
<td>1'-2'</td>
</tr>
<tr>
<td>20'</td>
<td>M9710 35CMT6 SP</td>
<td>2'-3'</td>
</tr>
<tr>
<td>30'</td>
<td>M9710 70CMT6 SP</td>
<td>2'-3'</td>
</tr>
</tbody>
</table>

#### SIGNS

For small to medium ground mounted signs:

<table>
<thead>
<tr>
<th>Sign dimensions (square)</th>
<th>Fixture</th>
<th>Set back</th>
</tr>
</thead>
<tbody>
<tr>
<td>3'-4'</td>
<td>M9710 50M WFL</td>
<td>1'-2'</td>
</tr>
<tr>
<td>6'-8'</td>
<td>M9710 70M WFL</td>
<td>2'-3'</td>
</tr>
<tr>
<td>10'-12'</td>
<td>M9710 175M WFL</td>
<td>4'-5'</td>
</tr>
</tbody>
</table>

#### FLAGS

For flag sizes 5' - 10' in width:

<table>
<thead>
<tr>
<th>Pole Height</th>
<th>SINGLE FIXTURE placed up to 2' directly in front of pole</th>
<th>TWO FIXTURES placed 180° apart</th>
<th>THREE FIXTURES placed in triangle pattern 120° apart</th>
</tr>
</thead>
<tbody>
<tr>
<td>15'</td>
<td>M9710 70M SP</td>
<td>M9710 70M SP</td>
<td>M9710 70M SP</td>
</tr>
<tr>
<td>25'</td>
<td>M9710 100M SP</td>
<td>M9710 100M SP</td>
<td>M9710 100M SP</td>
</tr>
<tr>
<td>40'</td>
<td>M9710 175M SP</td>
<td>M9710 175M SP</td>
<td>M9710 175M SP</td>
</tr>
</tbody>
</table>

* M9730 can also be used

** M9720, M9730, & M9740 can also be used
## M9800 SERIES

### WALLS and BUILDINGS

For light colored, smooth concrete walls:

<table>
<thead>
<tr>
<th>Wall height</th>
<th>4'</th>
<th>6'</th>
<th>10'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixture</td>
<td>M9810 250ME WWD</td>
<td>M9810 250ME WWD</td>
<td>M9810 400ME WWD</td>
</tr>
<tr>
<td>Spacing</td>
<td>20'</td>
<td>20'</td>
<td>20'</td>
</tr>
<tr>
<td>Set back</td>
<td>8'</td>
<td>10'</td>
<td>12'</td>
</tr>
</tbody>
</table>

### COLUMNS

For light colored, smooth concrete columns:

<table>
<thead>
<tr>
<th>Column height</th>
<th>40'</th>
<th>20'</th>
<th>60'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixture *</td>
<td>M9810 250ME SP</td>
<td>M9810 250ME SP</td>
<td>M9810 400ME SP</td>
</tr>
<tr>
<td>Set back</td>
<td>2'-3'</td>
<td>2'-4'</td>
<td>2'-4'</td>
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</tbody>
</table>

### SIGNS

For large ground mounted signs:

<table>
<thead>
<tr>
<th>Sign dimensions (square)</th>
<th>15'</th>
<th>20'</th>
<th>30'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixture **</td>
<td>M9820 250ME MFL</td>
<td>M9820 250ME MFL</td>
<td>M9820 250ME MFL</td>
</tr>
<tr>
<td>Set back</td>
<td>5'</td>
<td>6'-8'</td>
<td>6'-8'</td>
</tr>
</tbody>
</table>

### FLAGS

For flag sizes 10' - 15' in width:

<table>
<thead>
<tr>
<th>Pole height</th>
<th>SINGLE FIXTURE placed up to 2 directly in front of pole</th>
<th>TWO FIXTURES placed 180° apart located 1/10 pattern 120° apart placed 1/10 from base</th>
<th>THREE FIXTURES placed / triangle pattern 180° apart located 1/10 pole height from base</th>
</tr>
</thead>
<tbody>
<tr>
<td>40'</td>
<td>M9810 250ME SP</td>
<td>M9810 250ME SP</td>
<td>M9810 400ME SP</td>
</tr>
<tr>
<td>60'</td>
<td>M9810 250ME SP</td>
<td>M9810 250ME SP</td>
<td>M9810 400ME SP</td>
</tr>
<tr>
<td>80'</td>
<td>M9810 400ME SP</td>
<td>M9810 400ME SP</td>
<td>M9810 400ME SP</td>
</tr>
<tr>
<td>100'</td>
<td>M9810 400ME SP</td>
<td>M9810 400ME SP</td>
<td>M9810 400ME SP</td>
</tr>
</tbody>
</table>

*M9820 can also be used*
**Application**

**TREES M9000 Series**

Lamp selection according to size, structure, color enhancement:

<table>
<thead>
<tr>
<th>Tree size</th>
<th>SMALL (10-20 ft.)</th>
<th>MEDIUM (20-40 ft.)</th>
<th>LARGE (over 40 ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure</td>
<td>Open Fixture</td>
<td>Tight Fixture</td>
<td>Open Fixture</td>
</tr>
<tr>
<td></td>
<td>M9710 75H MFL</td>
<td>M9710 100H MFL</td>
<td>M9710 175H MFL</td>
</tr>
<tr>
<td>MV</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(enhances blue)</td>
<td>M9710 70M MFL</td>
<td>M9710 100M MFL</td>
<td>M9710 175M WW</td>
</tr>
<tr>
<td>MH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(enhances green)</td>
<td>M9410 M75 FL</td>
<td>M9410 150Q MFL</td>
<td>M9710 250Q MFL</td>
</tr>
<tr>
<td>QTZ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(enhances white)</td>
<td>M9410 P3075 FL</td>
<td>M9410 P38250 FL</td>
<td>M9710 P38250 FL</td>
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<tr>
<td>INCAN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(enhances red / yellow)</td>
<td>M9410 P3075 NSP</td>
<td>M9710 P38250 SP</td>
<td>M9710 P38250 SP</td>
</tr>
</tbody>
</table>

Setback:

- 4’
- 2’
- 8-10’
- 4-7’
- 8-15’
- 7-16’

NOTE: When installed in areas of debris build-up use Polycarbonate protective cover LC

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**Optical aiming of M9000 Series**

10° tilt lens for Spot Applications

- **x** = Distance of setback of fixture for beam center to hit height desired.
- **y** = Height of object where beam center is desired.
- **x** Distance of setback

<table>
<thead>
<tr>
<th>Height of object</th>
<th>10 ft</th>
<th>20 ft</th>
<th>30 ft</th>
<th>40 ft</th>
<th>50 ft</th>
<th>60 ft</th>
<th>70 ft</th>
<th>80 ft</th>
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<tbody>
<tr>
<td></td>
<td>2.0 ft</td>
<td>3.5 ft</td>
<td>5.2 ft</td>
<td>7.0 ft</td>
<td>9.0 ft</td>
<td>10.5 ft</td>
<td>12.2 ft</td>
<td>14.0 ft</td>
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**M9000 Series spot adjustment ranges**

<table>
<thead>
<tr>
<th>Lamp Type</th>
<th>Internal adj.</th>
<th>Optical adj.</th>
<th>Total</th>
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<tbody>
<tr>
<td>Incan. units (T-4)</td>
<td>25°</td>
<td>10°</td>
<td>35°</td>
</tr>
<tr>
<td>HID units (E17/A23)</td>
<td>12°</td>
<td>10°</td>
<td>22°</td>
</tr>
<tr>
<td>PAR38 units</td>
<td>15°</td>
<td>10°</td>
<td>25°</td>
</tr>
</tbody>
</table>
A pair of 175 Watt M9700 metal halides effectively wash a grove of seventy-foot-tall pine trees with a soft even glow.
Ordering and Specification Guide

To order, use a single master catalog number:
Example: M9410 A 70CMT6 120 SP FLC 34B ISS STR SF LP

Table:

<table>
<thead>
<tr>
<th>Model</th>
<th>70CMT6</th>
<th>Voltage</th>
<th>Distribution</th>
<th>SP</th>
<th>FLC</th>
<th>34B</th>
<th>ISS</th>
<th>STR</th>
<th>SF</th>
<th>LP</th>
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</thead>
<tbody>
<tr>
<td>M9410</td>
<td>120</td>
<td>Not all</td>
<td>See Lamp</td>
<td>N</td>
<td>FLC</td>
<td></td>
<td></td>
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<tr>
<td></td>
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<td>Voltage</td>
<td>Types for</td>
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<td>information.</td>
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<tr>
<td>Voltage</td>
<td>120</td>
<td>V (60HZ)</td>
<td>MX6</td>
<td>X</td>
<td></td>
<td></td>
<td>12</td>
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<tr>
<td>277</td>
<td>208</td>
<td>240</td>
<td>347</td>
<td>M0VD1 (20-277) 1/2</td>
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<td></td>
<td></td>
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<tr>
<td>200</td>
<td>3056</td>
<td>240</td>
<td>3056</td>
<td>1/2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>230</td>
<td>1056</td>
<td>230</td>
<td>1056</td>
<td>1/2</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LOW VOLTAGE</td>
<td>90 HZ &amp; 50 HZ</td>
<td>12</td>
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</tbody>
</table>

Wattage & Lamp:
All fixture ships w/ lamp installed. Not all lamp types available with all distributions. For MR16, PAR lamps, consult lamp manufacturer.

LAMP TYPE LOW VOLTAGE (U.S. & EUROPEAN)
M20 20W MR16 G6.35
M50 50W MR16 G6.35
M75 75W MR16 G6.35
P3635LV 35W PAR36 SCREW
P6365LV 36W PAR36 SCREW
P365LV 35W PAR36 SCREW
P635LV 36W PAR36 SCREW
Distributions VNSP, NFS, FLF, WFL

LAMP TYPE INCANDESCENT (U.S.)
P1645I 45W PAR16 MED
P1646I 46W PAR16 MED
P1635I 35W PAR16 MED
P285I 50W PAR20 MED
P305I 50W PAR30 MED
P370I 70W PAR30 MED
P175I 75W PAR16 MED
P375I 75W PAR30 MED
P170I 70W PAR16 MED
Distributions VNSP, SP, FL, WFL

LAMP TYPE INCANDESCENT (EUROPEAN)
P1644I 44W PAR16 E27
P284I 50W PAR20 E27
P305I 50W PAR30 E27
P370I 70W PAR30 E27
P170I 70W PAR16 E27
Distributions VNSP, SP, FL, WFL

FLUORESCENT (U.S. & EUROPEAN)
1TR2 18W Triple Tube 36x24y-2
2TR2 24W Triple Tube 36x24y-2
3TR2 32W Triple Tube 36x24y-3
Distributions ASY, FLF, WWF

LAMP TYPE HID color connected (U.S. & EUROPEAN)
20CM12 20W (HID) T4 G8.5 G8.5
36CM12 36W (HID) T4 G8.5 G8.5
36CM20 36W (HID) T6 G12 G12
70CM12 70W (HID) T4 G8.5 G8.5
70CM20 70W (HID) T6 G12 G12
P2005CM 20W (HID) PAR20 MED
P3005CM 30W (HID) PAR30 MED
Distributions SP, FL, WFL

Examples:
1. MR949RE3 34B (Housing)
2. MF939R A STR (Finishing Section)
3. MACS 70CMT6 SP FLC ISS LP (Lamp Module)
4. M9HLS94 70CMT6 120 (Ballast Power Module)

Material:
A Aluminum
B Brass
S Stainless Steel
ASP 1 Alum. w/ Stainless Perf.
BSP 1 Bronze w/ Brass Perf.
BSP 2 Bronze w/ Stainless Perf.
ASS 1 Alum. Door, Solid Alum. Insert
ASS 2 Alum. Door, Solid Stainless Insert
BBR 1 Bronze Door, Solid Bronze Insert
BBR 2 Bronze Door, Solid Stainless Insert

For more information, contact the factory or visit the Hydrel website: www.hydrel.com

1 Hydrel is a ISO9001 Registered Quality System Company

1 Not available for M9430, M9440 Models. Available with unpainted finish only.
2 Available with GEB ballasts only.
3 Standard on fluorescent lamps and MH lamps with GEB Ballasts.
4 Low voltage transformer required. Sold separately.
5 FLCS (fluorescent) or FLFS (HID) lens included standard. WWF available with fluorescent and T4 (Incan, HID) lamps only.
6 ASV available with fluorescent lamps only.
7 Not available with ASY distribution.
8 Not available with WW distribution.
9 Not available with SS material.
10 Mutually exclusive, choose one only.
11 Available with M9410, M9420 only.
12 Available with M9430, M9440 only.
13 Available with 120V, 277V, and 347V only.
14 Available with 208V, 230V, and 240V only.
15 Available with M0VD1 (20-277V) voltage only for Metal Halide lamps to 150 Watt maximum.
16 For use with 0V to 10V analog dimmer (by others). Additional electrical conductors are required. Consult Hydrel for details.
17 Standard finish is unpainted unless specified.

Accessories:
INTERNAL 7
IIL Internal Honeycomb Louver
ISS Internal Source Shield
WWL Wall Wash Louver
LSP Linear Spread Filter
CFAM Color Filter Amber
CFBU Color Filter Blue
CFGRN Color Filter Green
CFRED Color Filter Red

EXTERNAL DOOR 10
RG Rockguard
GS Olive Green
LG Polycarbonate Protective Cover

EXTERNAL TRIM 11
STR Stainless Steel Trim Ring, Round
STS Stainless Steel Trim Ring, Square
BTS Brass Trim Ring, Round

NEMKO CE 6
IP 67 Rating
### Ordering and Specification Guide

To order, use a single master catalog number:

**Example:** M9710 A 150CMT6 120 SP NSP FLC 34B ISS STR SF LP

#### Fixture ships as multiple components:

1. **MR979FL 34B** (Housing)
2. **MF979 A STR** (Finishing Section)
3. **MACI 150CMT6 NSP FLC ISS LP** (Lamp Module)
4. **MHS107 150CMT6 120** (Ballast Power Module)

#### Material

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>Bronze</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>ASP</td>
<td>BBP</td>
<td>BSP</td>
</tr>
<tr>
<td>Alum. w/ Stainless Steel Perfor.</td>
<td>Bronze w/ Brass Perfor.</td>
<td>Bronze w/ Stainless Steel Perfor.</td>
</tr>
<tr>
<td>AAS</td>
<td>BBS</td>
<td>BSS</td>
</tr>
<tr>
<td>Alum. Door</td>
<td>Solid Alum. Insert</td>
<td>Bronze Door</td>
</tr>
</tbody>
</table>

#### Voltage & Lamp

All fixtures are w/ lamp installed. Not all lamp types available with all distributions. For MR16, PAR lamps, consult lamp manufacturer.

**LAMP TYPE INCANDESCENT PAR38 & PAR64**

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>P81100</td>
<td>120V 100W MED. E27</td>
<td>Narrow Spot</td>
</tr>
<tr>
<td>P81125</td>
<td>120V 250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
<tr>
<td>P81250</td>
<td>250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
</tbody>
</table>

**LAMP TYPE QUARTZ**

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>P81100Q</td>
<td>120V 100W MED. E27</td>
<td>Narrow Spot</td>
</tr>
<tr>
<td>P81125Q</td>
<td>120V 250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
<tr>
<td>P81250Q</td>
<td>250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
</tbody>
</table>

**LAMP TYPE FLUORESCENT (U.S. & EUROPEAN)**

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>P81100Q</td>
<td>120V 100W MED. E27</td>
<td>Narrow Spot</td>
</tr>
<tr>
<td>P81125Q</td>
<td>120V 250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
<tr>
<td>P81250Q</td>
<td>250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
</tbody>
</table>

**LAMP TYPE HID**

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>P81100Q</td>
<td>120V 100W MED. E27</td>
<td>Narrow Spot</td>
</tr>
<tr>
<td>P81125Q</td>
<td>120V 250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
<tr>
<td>P81250Q</td>
<td>250W MED. NA</td>
<td>Narrow Flood</td>
</tr>
</tbody>
</table>

#### Lens

Double lens (M9720, M9740) always ship w/FLC on lower lamp module and specified lens on upper finishing section.  
- **CLR** Convex, Clear  
- **CLF** Convex, Frosted  
- **FLC** Flat, Clear  
- **FLACS** Flat, Anti-slip, 10° tilt  
- **FLFS** Flat, Frosted, 5° axial spread  
- **FLFAS** Flat, Frosted, Anti-slip

**FLC** lens recommended for 70 watt HID and lower. **FLC5** lens recommended for 100 watt HID and higher.

#### Accessories

**INTERNAL**

- HVL: Internal Honeycomb Louver  
- ISS: Internal Source Shield  
- VFL: Vertical Louver  
- CSFAM: Color Filter Amber  
- CSFRU: Color Filter Blue  
- CFGRN: Color Filter Green  
- CFRED: Color Filter Red

**EXTERNAL DOOR**

- RG: Rock guard  
- GS: Glare Shield  
- LC: Polycarbonate Protective Cover

**EXTERNAL TRIM**

- STG: Stainless Steel Trim Ring, Round  
- BTR: Brass Trim Ring, Round  
- DPS: Brass Trim Ring, Square  
- PRR: Protective Ring, Round  
- PRS: Protective Ring, Square  
- GM: Granite Mask


**NEMKO CE**

**IP68 Rating**

For more information, contact the factory or visit the Hydrel website: www.hydrel.com

Hydrel is a ISO9001 Registered Quality System Company

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1. Not available w/ M9730, M9740 Models. Available with unpainted finish only.
2. Available to 100 Watt max only.
4. FL5 lens recommended for 70 watt HID and lower. FL15 lens recommended for 100 Watt HID and higher.
5. Default lens for WWD distribution Quartz, Froscuent, and 100 Watt HID and higher.
6. ISS not available with PAR or fluorescent lamps, or WWD distribution.
7. Not available with PAR lamps.
8. Not available with SS material. Accessories are mutually exclusive, choose one only.
9. RG not available with CLR or CLF convex lens.
10. LC not available for M9710, M9730.
11. Available with M9710, M9720 only.
12. Available with M9720, M9740 only.
13. Available with M9730, M9740 only.  
14. Not available with SS material.
15. Available with 120V, 277V, and 347V only.
16. Available with 208V, 220V, and 240V only.
17. Available with MVOLT (120-277V) voltage only for Metal Halide lamps to 150 Watt maximum.
18. For use w/ 10V analog dimmer (by others). Additional electrical conductors are required. Consult Hydrel for details.
19. Standard finish is unpainted unless specified.
Ordering and Specification Guide

To order, use a single master catalog number:
Example: M9810  B  400ME  120 SP  FLC  34B  ISS  BTR  SF  LP  STG

Fixture ships as multiple components:
(1) MRIS8RL  34B  (Housing)
(1) MFS98R  B  BTR  (Finishing Section)
(1) MACXL  400ME  SP  FLC  ISS  LP  (Lamp Module)
(1) MHSL38  400ME  120  (Ballast Power Module)

EXAMPLE

M9810  B

Model
M9810  Round Single Lens
M9820  Round Double Lens

Material
A  Aluminum
B  Bronze
AAS  1 Aluminum, Door, Solid Aluminum Insert
ASS  1 Aluminum, Door, Solid Stainless Steel Insert
BBS  1 Bronze Door, Solid Bronze Insert
BSS  1 Bronze Door, Solid Stainless Steel Insert

NEMKO  CE  IP67 Rating

For more information, contact the factory or visit the Hydrel website: www.hydrel.com

Hydrel is an ISO9001 Registered Quality System Company

Wattage & Lamp
All fixtures ship with lamp installed.
Not all lamp types available with all distributions.

LAMP TYPE INCANDESCENT (U.S.)
P6G36B  300W PAR64  Ext.Mogul End Prong
P6G500  500W PAR64  Ext.Mogul End Prong
Distributions: NSP, SP, MFL, WFL

LAMP TYPE INCANDESCENT (EUROPEAN)
P6G36B  300W PAR64  E40X2D
P6G500  500W PAR64  GX16D
Distributions: SP, MFL, WFL

LAMP TYPE HID (U.S.)
250ST  250W  HPS  Mogul
400ST  400W  HPS  Mogul
175ME  175W  MH  E23/12  Mogul
250ME  250W  MH  E26  Mogul
400ME  400W  MH  E37  Mogul
Distributions: SP, MFL, WW

LAMP TYPE HID (EUROPEAN)
250ST  250W  HPS  Tabular E40
400ST  400W  HPS  Tabular E40
250MT  250W  MH  Tabular E40
400MT  400W  MH  Tabular E40
Distributions: SP, MFL, WW

Options
Lamping
SF  7  Single Fuse
LP  8  Double Fuse

Finish
BL  Black
BZ  Bronze
DDB  Dark Bronze
DNA  Natural Aluminum
GN  Green
GR  Gray
SND  Sand
STG  Steel Gray
TVS  Terra Verde green
WH  White
CF  Custom

Accessories
INTERNAL
BHL  Internal Honeycomb Louver
ISS  Internal Source Shield
WWL  Wall Wash Louver

EXTERNAL DOOR
RG  Rockguard
GS  Glare Shield

EXTERNAL TRIM
STR  Stainless Steel Trim Ring, Round
BTR  Brass Trim Ring, Round

U.S. Voltage  (60HZ)
120 220
277 208
240 347

EUROPEAN Voltage  (50HZ)
22050HZ
23050HZ
24050HZ

1 Available to 250 Watt max only. Available with unpainted finish only.
2 FLC5 lens included standard.
3 Not available with PAR lamps.
4 FLC10 and FLC20 not available on M9810.
5 ISS not available with PAR lamps or WWD distribution.
6 Mutually exclusive, choose one only.
7 Available with 120V, 277V, and 347V only.
8 Available with 208V, 220V, and 240V only.
9 Standard finish is unpainted unless specified.

A number of M9700s with 175 Watt metal halide lamps illuminate the facade of the famous landmark Chicago Water Tower.