

FORM TEN

ROUND FORM AREA LIGHTING

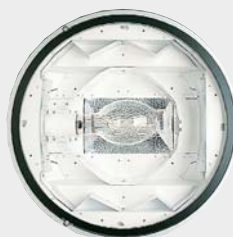


GARDCO
LIGHTING



ORIGINAL

Gardco Form Ten Round luminaires are a natural complement to their classic rectilinear counterparts. Architecturally, the series lends itself not only to a range of building motifs, but provides the designer wide latitude in addressing different mounting height requirements. Elegant Hardtop luminaires and distinctive Glowtops offer the ultimate in detailing and design.



OPTICAL SYSTEMS

4-9

Performance of these luminaires is unparalleled. Each accepts the full range of Gardco performance optical systems... six multi-faceted reflectors which minimize light trespass and glare, while delivering exceptional pavement uniformity. Because reflectors systems can be rotated within the housing, nighttime visibility is improved without sacrificing the daytime architectural environment.



GUIDELINES AND APPLICATIONS

10-13

The pages that follow introduce the fundamentals of visibility and how it is achieved through the application of eight unique optical systems. A practical example is provided to demonstrate the remarkable performance of the system, and how optical systems can be interchanged and rotated within the housing styles to meet site geometry and aesthetic.



DURABILITY

14-15

Durability is uncompromised – rugged construction, spun aluminum housings, weather-tight sealing – Form Ten design and construction is synonymous with quality.



SPECIFICATIONS

16-31

Complete ordering and specification information is provided. Your Gardco lighting representative can assist with further information and specifications.

FORM



FUNCTION



PERFORMANCE



OPTICAL SYSTEMS

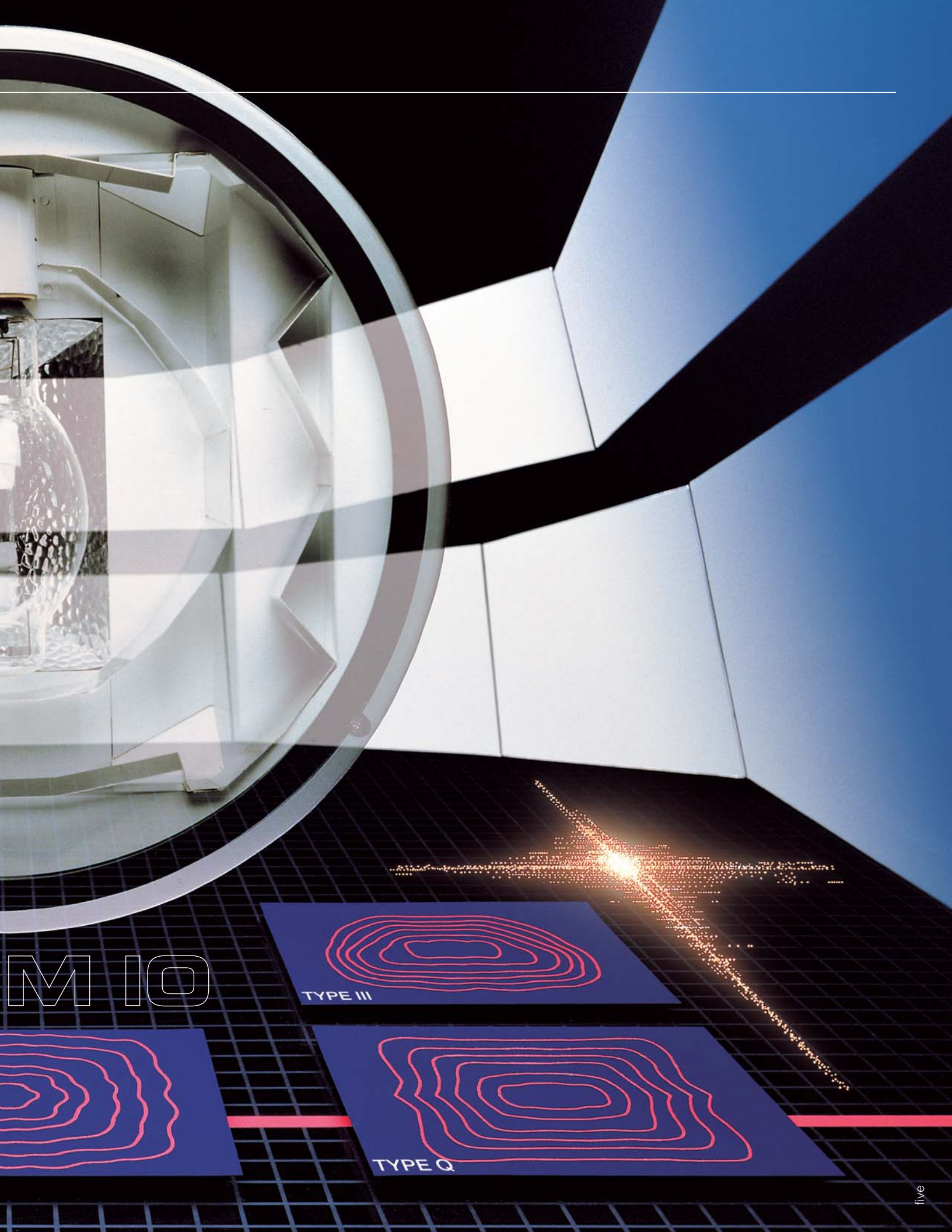


TYPE FM

TYPE I

FOR

TYPE VS



M IO

TYPE III

TYPE Q

PERFORMANCE

A fundamental difference between competing lighting systems is performance – and performance ultimately affects cost. That said, it is important to recognize that the patented Form Ten X optical systems make these luminaires the best performing lighting instruments available. The benefits of higher performance levels are numerous. In many applications, fewer luminaires are necessary to illuminate a site, compounding fixture, pole, installation and maintenance savings. These more efficient luminaires typically enable mounting at lower heights, further reducing initial and long term service costs.

4X Optics

Now Form Ten optical design includes conical tangential optics. The Form Ten X optics are 'oversized' so that lamp lumen output can be directed into measurably wider distributions, enabling wider pole spacings at most mounting heights.





The Conical Fan Reflector

The Form Ten X reflector facets form a fan around the lamp – with each facet positioned to be precisely tangent to the top of the arc tube. This patented design captures and redirects lumens to the critical angles just below cutoff – delivering the footcandle values essential to wider spacings.

Highly Reflective Material

An essential component of the Form Ten X is an anodized aluminum with reflectivity approaching 95%. The mirror-like finish of the faceted optics substantially improves the efficiency of lumens redirected by the reflector.

House Side Shield

The available house side shield is a natural option to eliminate house side illumination where absolute cutoff is desired. The shield arrives factory installed, captured within the reflector.

Rotatable Optical Systems

Gardco pioneered the concept of rotatable optics – which enable pole orientation and light distribution to be independent of one another. It also enables reorientation of the optical system should traffic patterns change.

Uniform Distributions

Gardco's long-standing commitment to high performance lighting is ultimately reflected in the distribution created by the Form Ten X conical reflector. The 4X distribution provides exceptionally wide and uniform illumination free from hot spots and striations. Maximum to minimum ratios are excellent, and there is full cutoff at the required angle for each distribution.

FLEXIBILITY

The Form Ten system is comprised of high performance optical reflectors – six multi-faceted, multi-layered reflectors which are unequalled in their ability to efficiently shape, direct and distribute lamp output. They provide remarkable flexibility in precisely matching light distribution patterns to specific site geometry and mounting requirements. Because each reflector is fully interchangeable throughout housing shapes and styles, a uniform site aesthetic can be achieved regardless of luminaire mounting height.

Because Gardco optical systems direct a higher percent of lamp lumens into desired areas, design criteria may be achieved with wider pole spacings. Wider spacings can provide immediate savings in luminaires, poles, trenching and other installation costs and long term savings in maintenance and energy consumption.



Type 4X

Type 4X conical fan optics produce an asymmetrical distribution pattern that directs the majority of the light forward and equally on both sides of the luminaire. In a back-to-back configuration the 4X produces a square symmetrical pattern ideally suited for area lighting.



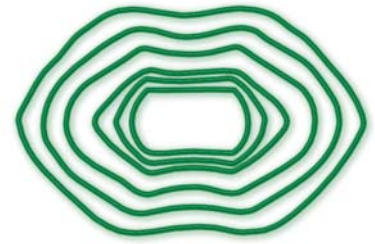
Applications

- 1 Wide Area Lighting
- 1 Wide Roadway
- 1 Perimeter Only Lighting
- 1 Low Glare Requirements
- 1 Minimal Mounting Locations

Typical Spacing

Single luminaire:
2 MH forward x 6 MH lateral.

Back-to-back luminaires:
2 MH forward x 6 MH lateral.



Type I

Type I optics produce a long and narrow distribution pattern that disperses light equally on both sides of the luminaire with peak light output falling along the roadway or walkway. This distribution is most useful in illuminating long narrow areas.

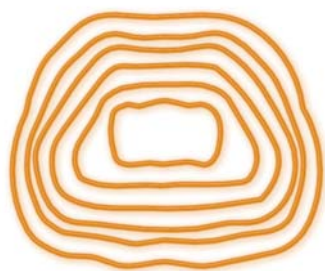


Applications

- 1 Narrow Walkways
- 1 Building Alleyways
- 1 Median Mounted Divided Highways

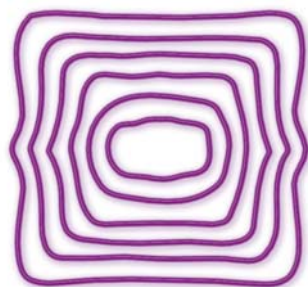
Typical Spacing

1 MH forward and behind x
6-7 MH lateral.



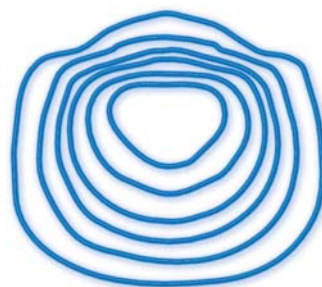
Type III

Type III optics produce an asymmetrical distribution pattern that directs the majority of the light forward and equally on both sides of the luminaire. In a back-to-back configuration the Type III produces a rectangular pattern which can extend pole spacings.



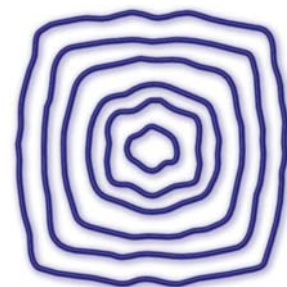
Type Q

Type Q optics produce a symmetrical square distribution pattern that distributes light equally on all sides of the luminaire. The optical system is universal for most area lighting applications.



Type FM

Type IV forward throw optics distribute the majority of light in front on the luminaire with sharp cut-off of the pattern behind the luminaire (HS). This distribution is useful for areas where illumination is to be precisely confined in one direction.



Type VS

The VS optics use a vertically positioned lamp. These Type 5 cutoff optics produce a square uniform distribution pattern.



Applications

- 1 Semi-Wide Walkways
- 1 Semi-Wide Roadways
- 1 Area Lighting
- 1 Parking Entries/Exits
- 1 Perimeter Lighting

Typical Spacing

Single luminaire:
5 1/2 MH on center.

Back-to-back luminaires:
4-6 MH on center.



Applications

- 1 Area Lighting
- 1 Wide Median Mounted Divided Highways
- 1 Parking Entries/Exits

Typical Spacing

5 x 5 MH on center.



Applications

- 1 Wall Mount Requirements
- 1 Sports (i.e. Tennis Courts)
- 1 Perimeter Lighting with Surrounding Residential

Typical Spacing

2 MH forward x 4 MH lateral.



Applications

- 1 Wide Area Lighting
- 1 Higher Glare Acceptable
- 1 Stringent Uniformity Requirements

Typical Spacing

6 x 6 MH on center.

VISIBILITY

Providing for good visibility is more difficult in practice than in theory,

as site, aesthetic, economic and maintenance factors are introduced.

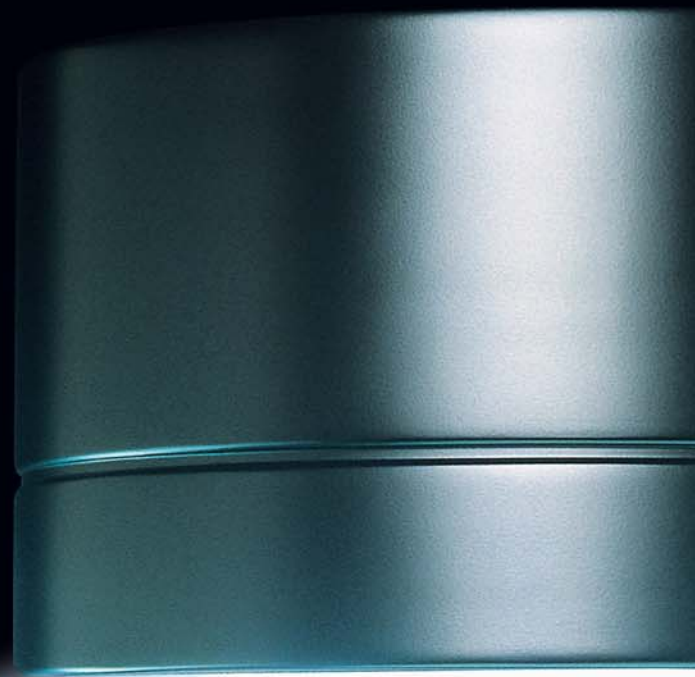
Designing for good visibility means ensuring that there is an adequate

level of illumination, uniform pavement luminance, and minimal glare.

In addition to good visibility, light trespass should be controlled, the

daytime product appearance should be appropriate, and both the

initial and life cycle cost of the design should be considered.

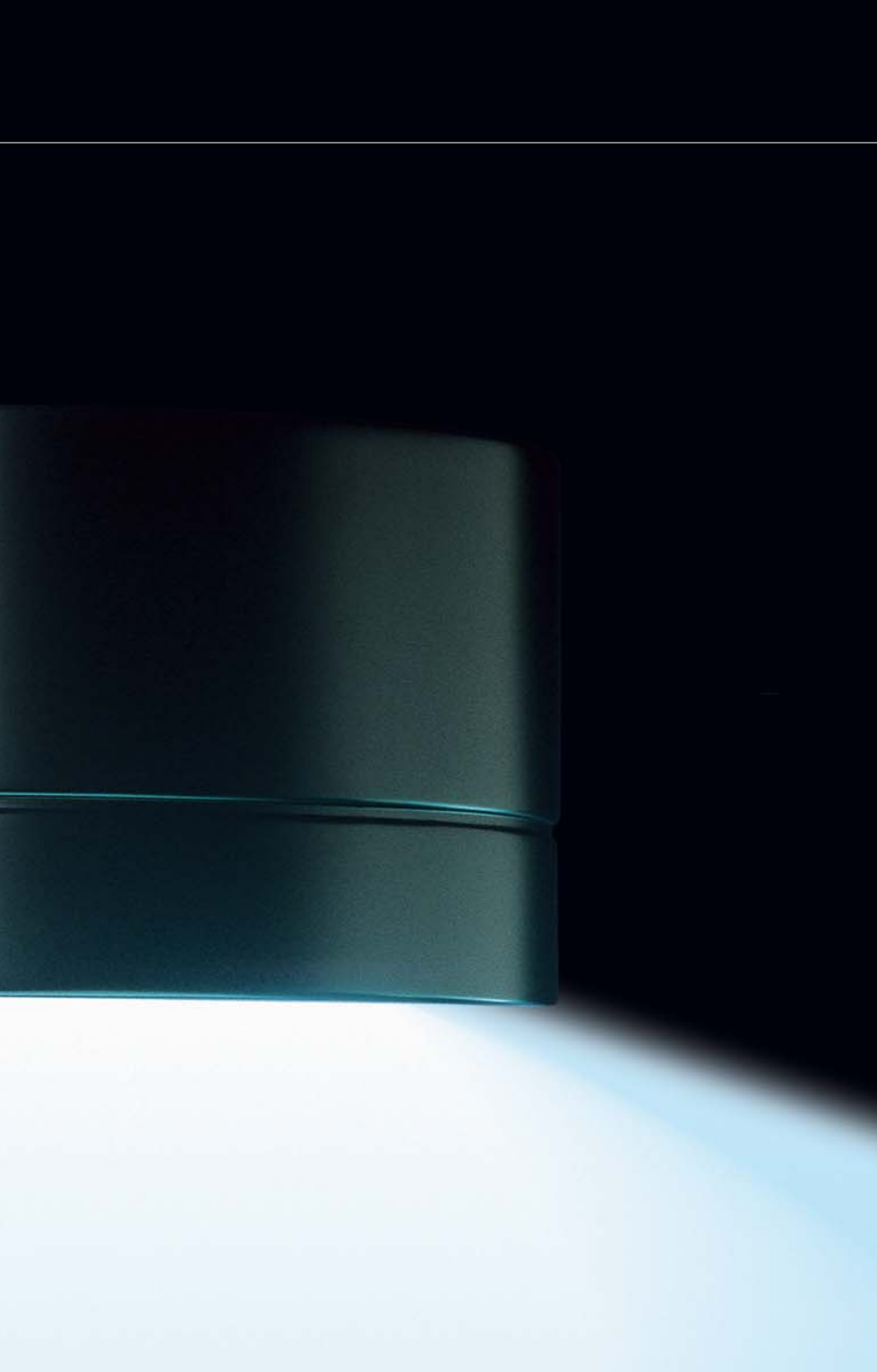


ADEQUATE LIGHTING LEVELS

The first requirement for visibility is ensuring that there is a sufficient quantity of light. It is always important to consider the surrounding environment. A restaurant parking lot on a dark country road will require significantly lower light levels than that same restaurant parking lot in a downtown area adjacent to other brightly lit commercial establishments.

UNIFORM PAVEMENT LUMINANCE

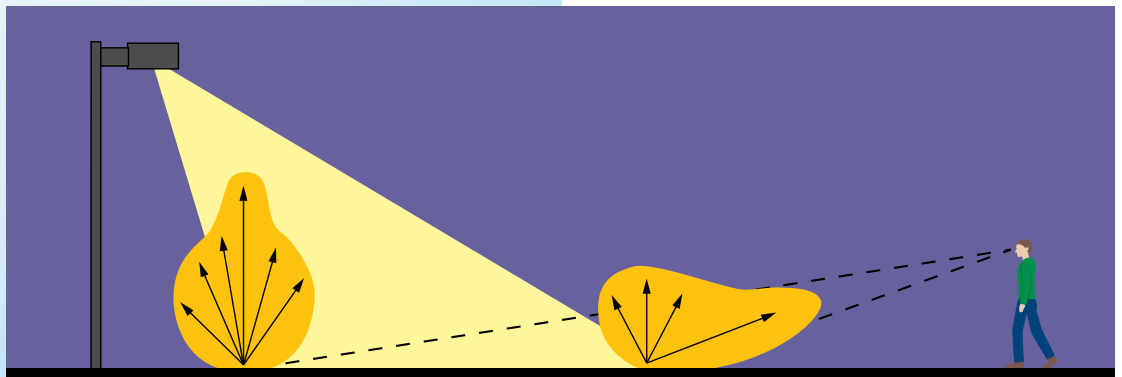
The second component of visibility is uniformity of pavement luminance. When the eye has to continually adjust to lighter and darker areas, vision is significantly impaired. A uniformly lit site appears lighter than a site which may have somewhat higher light levels, but poor uniformity. Although there are practical difficulties associated with specifying luminance values (footlamberts) as opposed to illuminance values (footcandles), it is important to remember that the eye sees luminance and not illuminance. Furthermore, because of the reflected angles of light that the eye sees, frequently areas lit to extremely uniform illuminance values (5 to 1 or lower maximum to minimum footcandles) may appear non-uniform.



GLARE CONTROL

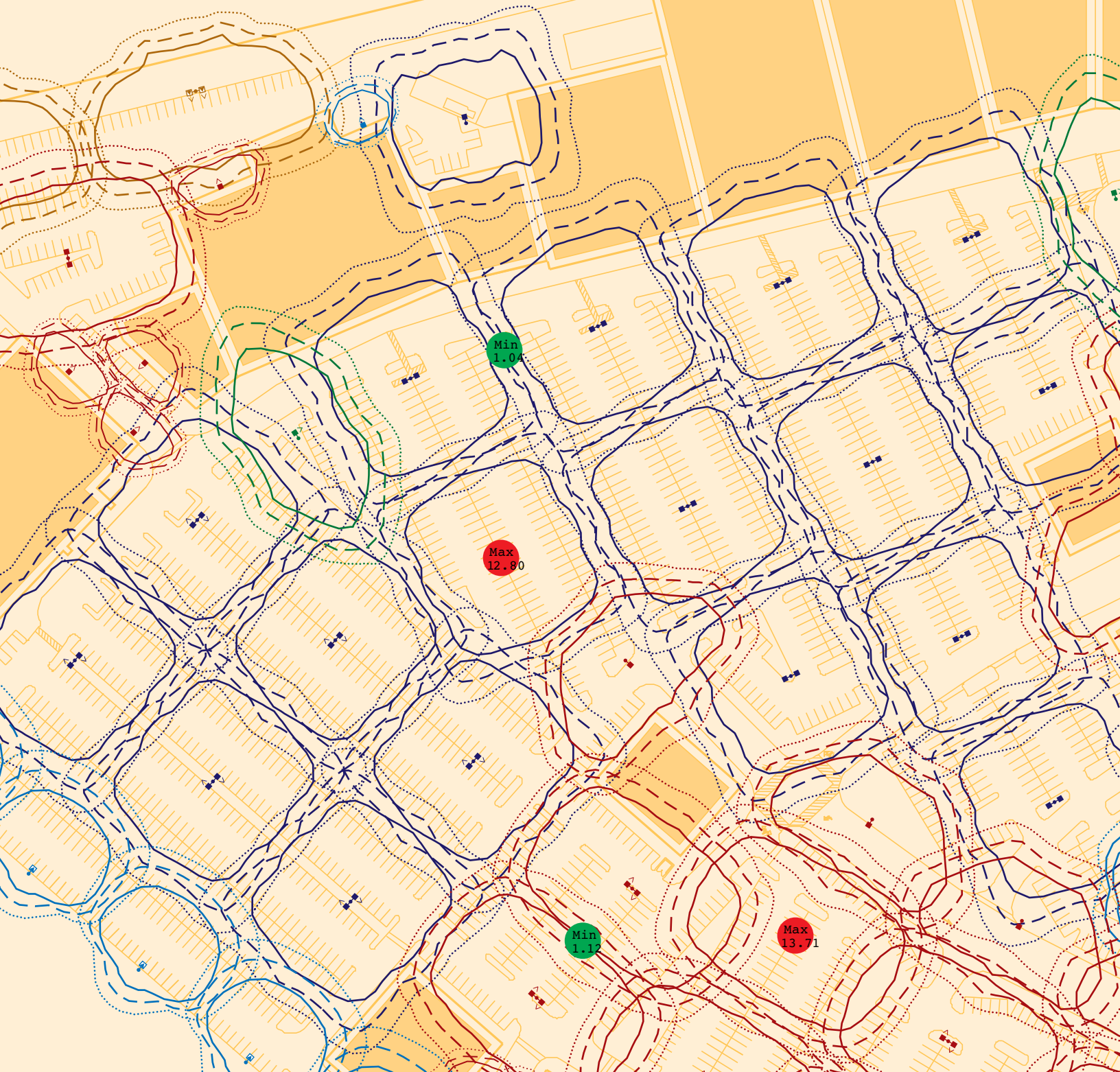
The factor most destructive to lighting performance is glare. Simply stated, glare is bright direct light from an unshielded source. At night, the human eye is drawn to the most luminous element in its field of vision. Uncontrolled glare is distracting, causes discomfort to the viewer, and adversely affects visibility. Glare entering the eyes causes a veiling luminance and impairs one's ability to identify objects in the site. Two forms of glare are recognized. The most obvious form, discomfort glare, causes us to avert our eyes from its source. The effects of discomfort glare are mainly psychological; i.e. increasing irritation and tiredness. The second type of glare, disability glare, results in reduced visual performance and visibility. Both types of glare are potentially dangerous and influence traffic safety.

It is because of this phenomenon that Gardco recommends designing to footcandle levels of 10-to-1 to 15-to-1 maximum to minimum, which will result in a site that appears uniformly lit.



Because the eye sees reflected light, sites lit to extremely uniform levels appear dark directly under luminaires.

APPLICATION



TYPE I
Standard



TYPE I
Rotated Optics



TYPE III
Standard



TYPE III
Rotated Optics



TYPE III
Wall Mount

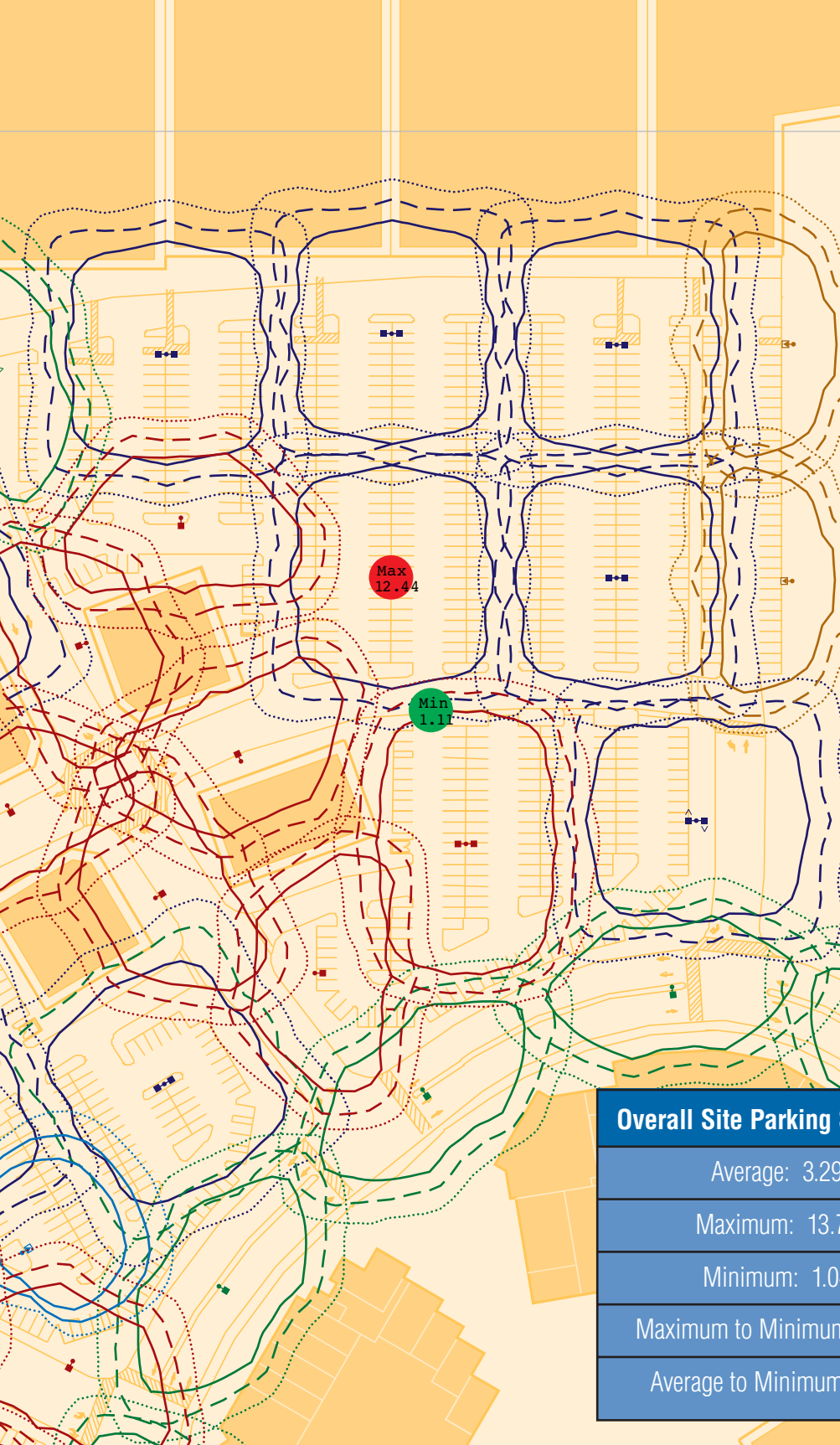


TYPE III with HS
Option Standard



TYPE III with HS Option
Rotated Optics





Careful attention to four basic design considerations will inevitably lead to superior visibility and the best value.

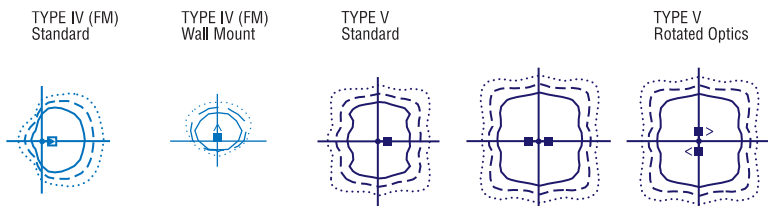
Minimum footcandle levels must be established, preferably, a maintained level using a depreciation factor that ensures illumination levels are sustained over time.

Mounting heights are of fundamental importance and have a direct influence on the number and location of luminaires, wattages of lamps, and initial and life cycle costs. Mounting height may be restricted by local ordinance, accessibility and capability of service equipment and the spatial relationship between the luminaires and landscape.

Type and wattage of lamp includes an analysis of the color, cost, life and performance characteristics of various HID sources. Gardco recommends the choice of clear lamps, to optimize the performance of the Form Ten optical systems.

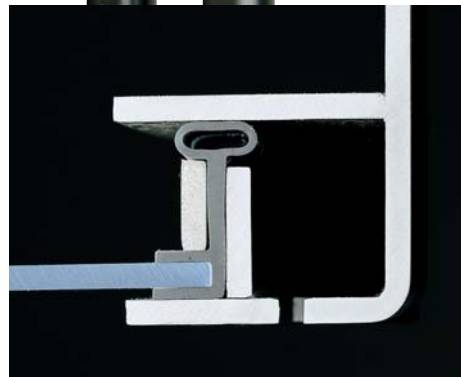
Maximum to minimum footcandle ratios of between 10:1 and 15:1 assure uniform appearing pavement luminance. When mounting heights, lamp types and optical systems are selected and placed as shown at left – light levels and uniformity criteria can be verified.

A footcandle printout verifies that the objectives of the lighting plan are accomplished... a one footcandle minimum maintained, with a maximum to minimum ratio no greater than 15:1.





Construction: Clean material transitions



Complete, permanent sealing



FEATURES



Service: Captive, quarter-turn fasteners



Lens and optical systems hinge down



Integrated ballast assembly

The lasting contribution of Gardco luminaires is ensured through minimum tolerance design and zero compromise construction.

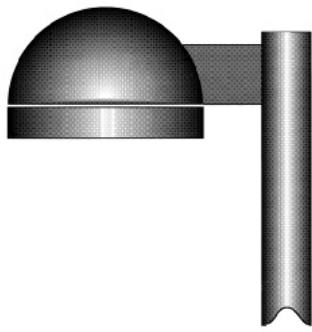
The housing, produced on a computer-controlled spinning lathe, is a one-piece design with a rolled reveal that improves structural and aesthetic integrity. It includes a return flange stiffener to protect against edge deformation.

One-piece, die cast door frames secure heat and impact resistant lenses which are fully gasketed with memory-retentive, hollow core silicone rubber. In short, luminaires indefinitely and completely exclude insects, dirt and moisture. The type of finish is at the specifier's direction – Architectural Class I anodizing or polyester powdercoat

are available. Service features are considerate of maintenance personnel and environmental circumstances. Lens and optical assemblies hinge down with a quarter turn of a captive stainless steel screw. The integrated ballast assembly is fully prewired with quick disconnects and easily dismounts for service or replacement.



HARDTOP



CA/MA ARM MOUNT HARDTOP

GENERAL DESCRIPTION: The Gardco Round Arm Mounted Form Ten products are cylindrical (CA) or semi-spherical (MA) sharp cutoff luminaires using high intensity discharge lamps up to 1000 watts (400w in the MA). Housings are one piece seamless spun aluminum and finished with either Architectural Class 1 anodizing or electrostatically applied TGIC polyester powdercoat. Luminaires can accept one of six (6) interchangeable and rotatable precision segmented optical systems.

ORDERING

PREFIX		CONFIGURATION		DISTRIBUTION		WATTAGE		VOLTAGE		FINISH		OPTIONS	
CA22		1		4X		400MH		277		BRA		PC	
CA17	17" Cylindrical	1	Single	1	Horizontal Lamp	See Table Below		120		BLA		HS	QS
MA17	17" Semi-Spherical	2	Twin	3	Type I			208		BRA		F	PTF2
CA22	22" Cylindrical	2@90	Twin @ 90°	4X^{1,2}	Type III			240		NA		LF	PTF3
MA22	22" Semi-Spherical	3	Triple @ 90°	FM	Type IV (22" only)			277		BRP		MF	PTF4
		3@120	Triple @ 120°	Q	Type V			347		BLP		PC	XF
		4	Quad		Vertical Lamp			480		WP		PCR	SG
					Type V			QUAD		NP		POLY	
					VS					OC			
					In 400w and below, luminaires are supplied with an acrylic sag lens. A glass sag lens is supplied with luminaires above 400w. Medium base only on 17" luminaires.					SC			
WATTAGE													
CA17	MA17	CA22	MA22										
50MH ³	50MH ³	250MH	250MH										
70MH ³	70MH ³	400MH	400MH										
100MH ³	100MH ³	1000MH ^{7,9,12}	250PSMH										
150MH ³	150MH ³	250PSMH	320PSMH										
175MH	175MH	320PSMH	350PSMH										
200MH	175PSMH ⁵	350PSMH	400PSMH										
250MH ¹¹	70HPS	400PSMH	450PSMH ⁴										
175PSMH ⁴	100HPS	450PSMH ⁴	250HPS										
250PSMH	150HPS ⁶	750PSMH ¹⁰	400HPS										
70HPS		875PSMH											
100HPS		1000PSMH ^{9,12}											
150HPS ⁶		250HPS											
		400HPS											
		750HPS ⁷											
MH	Metal Halide												
PSMH	Pulse Start Metal Halide												
HPS	High Pressure Sodium												
For 1000 Metal Halide, use: Brand Product Code Catalog Number Venture 53702 MS1000W/HOR/BT37/3K G.E. 18205 MVR1000/U/BT37 Venture 15332 MH1000W/U/BT37													
For 1000 Pulse Start, use: Brand Product Code Catalog Number Venture 10389 MVR1000/U/BT37/PA Venture 49111 MS1000W/HOR/T25/PS													
WARNING: Use of other lamps voids warranty													

- Notes**
- 22" luminaires, 400w and below are supplied with flat glass lens standard. For wattages above 400w, "XF" flat lens is supplied standard.
 - MH/PSMH 400w Type 4X luminaires require the E28/BT28 reduced jacket lamp.
 - Medium base lamp.
 - Available with vertical lamp optics only.
 - Available with horizontal lamps only.
 - Operates 55V lamp.
 - Uses BT37 lamps only.
 - Furnished standard with Sag Glass Lens.
 - Available with 4X and VS optics only.
 - M149 only. Horizontal optics require MS750/PS/BU-HOR/BT37 lamp.
 - Horizontal optics only.
 - For 1000w CA22 with 4X optics.

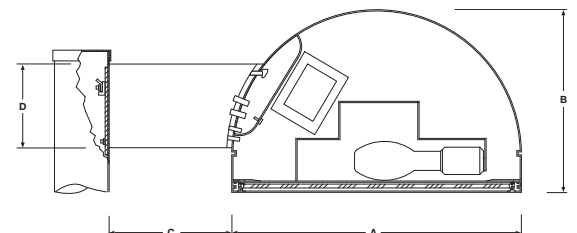
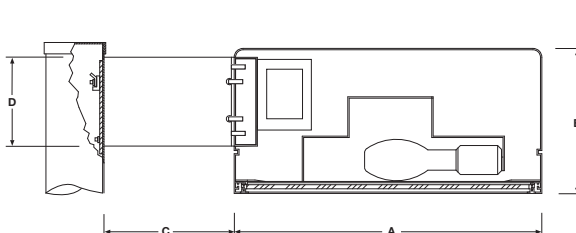
FINISH	
BLA	Black Anodized
BRA	Bronze Anodized
NA	Natural Anodized
BRP	Bronze Paint
BLP	Black Paint
WP	White Paint
OC	Optional Color Paint
Specify RAL designation ex: OC-RAL7024.	
SC	Special Color Paint
Must supply color chip.	

OPTIONS	
HS	Internal House Side Shield
Supplied standard with FM optics.	
F	Fusing
In Head. N/A above 400w.	
LF	In-Line/In-Pole Fusing
MF	Mast Arm Fitter
PC	Photocontrol and Receptacle
N/A with MA units or 480V.	
PCR	Photocontrol Receptacle only
N/A with MA units.	
POLY	Polycarbonate Sag Lens
In lieu of flat glass. N/A with 4X optics, 750-1000w.	
QS	Quartz Standby
N/A above 400w.	
PTF2	Pole Top Fitter - 2.375 - 3" Dia. Tenon
PTF3	Pole Top Fitter - 3 - 3.5" Dia. Tenon
PTF4	Pole Top Fitter - 3.5 - 4" Dia. Tenon
XF	Extended Flat Glass Lens
Flat Glass lens with extended drop. Allows for the use of a larger lamp and still meet IES Full cutoff classification.	
SG	Sag Glass Lens
In lieu of flat glass.	

DIMENSIONS

CA Style	Size	A	B	C	D	EPA's Single Arm	Twin 180°	Quad	Approx. Wt. Single Fixture
	17"	17"	8"	5"	5"	.7	1.5	2.1	27 lbs
		432mm	203mm	127mm	127mm	.07 m²	.14 m²	.20 m²	12.3 kgs
	22"	22"	11"	7"	5"	1.2	2.3	3.3	42 lbs
		559mm	279mm	178mm	127mm	.11 m²	.21 m²	.31 m²	19.1 kgs

MA Style	Size	A	B	C	D	EPA's Single Arm	Twin 180°	Quad	Approx. Wt. Single Fixture
	17"	17"	11"	5"	5"	.8	1.6	2.3	27 lbs
		432mm	279mm	127mm	127mm	.07 m²	.15 m²	.21 m²	12.3 kgs
	22"	22"	14"	7"	5"	1.3	2.7	3.7	40 lbs
		559mm	356mm	178mm	127mm	.12 m²	.25 m²	.34 m²	18.2 kgs





HARDTOP



CP/MP POST TOP HARDTOP

GENERAL DESCRIPTION: The Gardco Post Top Mounted Form Ten products are cylindrical (CP) or semi-spherical (MP) sharp cutoff luminaires using high intensity discharge lamps up to 1000 watts (400w in the MA). Housings are one-piece seamless spun aluminum and finished with either Architectural Class 1 anodizing or electrostatically applied TGIC polyester powdercoat. Luminaires can accept one of six (6) interchangeable and rotatable precision segmented optical systems. Optional twin glowrings at post tops are available in four (4) colors and are illuminated by the primary source.

ORDERING

PREFIX	MOUNTING			DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS	
CP22	1			4X	400MH	277	BRA	PC	
CP17	See Table Below			Horizontal Lamp	See Table Below	120	BLA	F	GRY
MP17				1		208	BRA	LF	GRG
CP22				3		240	NA	PC	GRR
MP22				4X ^{1,2}	Type IV (22" only)	277	BRP	PCR	XF
				FM	Type IV	347	BLP	POLY	SG
				Q	Type V	480	WP	HS	
					Vertical Lamp	QUAD	NP	QS	
				VS	Type V	120/208/240/277 factory tied to 277V	OC	GRG	
				In 400w and below, luminaires are supplied with an acrylic sag lens. A glass sag lens is supplied with luminaires above 400w. Medium base, 200w max on 17" units.					
				FINISH			OPTIONS		
				BLA Black Anodized			F Fusing		
				BRA Bronze Anodized			N/A above 400w.		
				NA Natural Anodized			LF In-Line/In-Pole Fusing		
				BRP Bronze Paint			PC Photocontrol and Receptacle		
				BLP Black Paint			N/A with MP units or 480.		
				NP Natural Aluminum			PCR Photocontrol Receptacle only		
				Paint			N/A with MP units.		
				WP White Paint			POLY Polycarbonate Sag Lens		
				OC Optional Color Paint			In lieu of flat glass. N/A with 4X optics 750 or 1000w units.		
				Specify RAL designation ex: OC-RAL7024.			HS Internal Houseside Shield		
				SC Special Color Paint			Supplied standard with FM optics. N/A above 400w with other optics.		
				Must supply color chip.			QS Quartz Standby		
							N/A above 400w.		
							GRC Glow Rings – Clear		
							GRY Glow Rings – Yellow		
							GRG Glow Rings – Green		
							GRR Glow Rings – Red		
							XF Extended Flat Lens		
							Flat Glass lens with extended drop. Allows for the use of a larger lamp and still meet IES Full cutoff classification.		
							SG Sag Glass Lens		
							In lieu of flat glass. Supplied standard with 4X optics and CP22 750/1000w.		
							</		

Notes

- 22" luminaires, 400w and below are supplied with flat glass lens standard. For wattages above 400w, "XF" flat lens is supplied standard.
- MH/PSMH 400w Type 4X luminaires require the E28/BT28 reduced jacket lamp.
- Medium base lamp.
- Available with vertical lamp optics only.
- Available with horizontal lamp optics only.
- Operates 55V lamp.
- Uses BT37 or E37 lamps only.
- M149 only. Horizontal optics require MS750/PS/BU-HOR/BT37 lamp.
- Available with 4X or VS optics only.
- For CP22 1000w with 4X optics, refer to lamp warning box below.

FINISH

BLA	Black Anodized
BRA	Bronze Anodized
NA	Natural Anodized
BRP	Bronze Paint
BLP	Black Paint
NP	Natural Aluminum Paint
WP	White Paint
OC	Optional Color Paint
SC	Special Color Paint

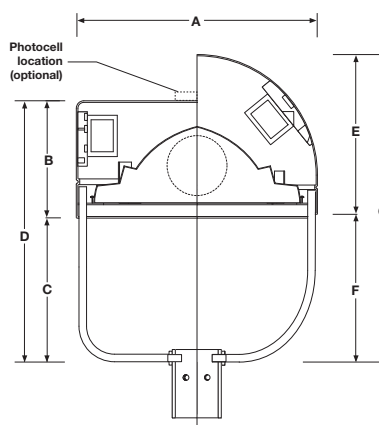
Specify RAL designation ex:
OC-RAL 7024.
Must supply color chip.

OPTIONS

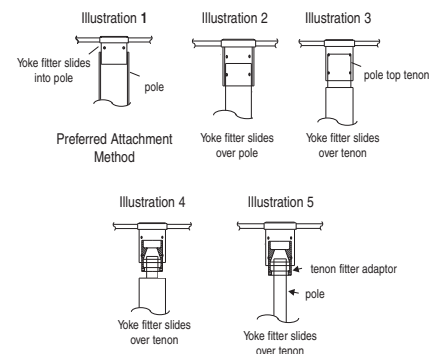
F	Fusing
N/A	above 400w.
LF	In-Line/In-Pole Fusing
PC	Photocontrol and Receptacle
N/A	with MP units or 480.
PCR	Photocontrol Receptacle only
N/A	with MP units.
POLY	Polycarbonate Sag Lens
N/A	In lieu of flat glass. N/A with 4X optics 750 or 1000w units.
HS	Internal Houseside Shield
N/A	Supplied standard with FM optics. N/A above 400w with other optics.
QS	Quartz Standby
N/A	above 400w.
GRC	Glow Rings – Clear
GRY	Glow Rings – Yellow
GRG	Glow Rings – Green
GRR	Glow Rings – Red
XF	Extended Flat Lens
N/A	Flat Glass lens with extended drop. Allows for the use of a larger lamp and still meet IES Full cutoff classification.
SG	Sag Glass Lens
N/A	In lieu of flat glass. Supplied standard with 4X optics and CP22 750/1000w.

DIMENSIONS

CP Style	Size	A	B	C	D	EPA	Approx. Weight
17"	17"	8"	10"	18"		.7 ft ² .07 m ²	31 lbs 14 kgs
22"	22"	11"	11"	5"		1.0 .09 m ²	50 lbs 22.6 kgs
MP Style	Size	A	E	F	G	EPA	Approx. Weight
17"	17"	11"	10"	21"		.7 ft ² .07 m ²	32 lbs 14 kgs
22"	22"	14"	11"	25"		1.0 ² .09 m ²	50 lbs 22.6 kgs

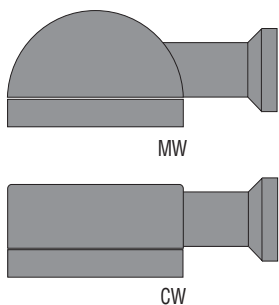


MOUNTING:



Refer to chart on opposite side for mounting information.





CW/MW WALL MOUNT HARDTOP

GENERAL DESCRIPTION: The Gardco Round Wall Mounted Form Ten products are cylindrical (CW) or semi-spherical (MW) sharp cutoff luminaires using high intensity discharge lamps up to 1000 watts. Housings are one piece seamless spun aluminum and finished with either Architectural Class 1 anodizing or TGIC polyester powdercoat. Luminaires can accept one of four (4) interchangeable precision optical systems.

ORDERING

PREFIX	CONFIGURATION	DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS
CW17	1	3	250MH	277	BRA	PC
CW17 17" Cylindrical MW17 17" Semi-Spherical CW22 22" Cylindrical MW22 22" Semi-Spherical	1 Single	1 Horizontal Lamp 3 Type I 4X ^{1,2} Type III FM Type IV	See Table Below	120 208 240 277 347 480 QUAD <small>120/208/240/277 factory tied to 277V</small>	BLA BRA NA BRP BLP WP NP OC SC	F PC PCR POLY XF HS QS SG

WATTAGE

CW17	MW17	CW22	MW22
50MH ³	50MH ³	250MH	250MH
70MH ³	70MH ³	400MH	400MH
100MH ³	100MH ³	1000MH ^{5,6,8}	250PSMH
150MH ³	150MH ³	250PSMH	320PSMH
175MH	175MH	320PSMH	350PSMH
200MH	70HPS	350PSMH	400PSMH
250MH	100HPS	400PSMH	250HPS
250PSMH	150HPS ⁴	750PSMH ⁷	400HPS
70HPS		1000PSMH ^{6,8}	
100HPS		250HPS	
150HPS ⁴		400HPS	
		750HPS ⁵	

MH Metal Halide
PSMH Pulse Start Metal Halide
HPS High Pressure Sodium

Notes

- 22" luminaires, 400w and below are supplied with flat glass lens standard. For wattages above 400w, "XF" flat lens is supplied standard.
- MH/PSMH 400w Type 4X luminaires require the E28/BT28 reduced jacket lamp
- Medium base lamp
- Operates 55V lamp.
- Uses BT37 lamps only.
- Available with 4X optics only
- M149 only. Horizontal optics require MS750/PS/BU-HOR/BT37 lamp
- For 1000w CW22 w/4X optics, see warning below:

FINISH

BLA Black Anodized
BRA Bronze Anodized
NA Natural Anodized
BRP Bronze Paint
BLP Black Paint
NP Natural Aluminum Paint
WP White Paint
OC Optional Color Paint
*Specify RAL designation
ex: OC-RAL7024.*
SC Special Color Paint
Must supply color chip.

OPTIONS

F Fusing
N/A above 400w.
PC Photocontrol and Receptacle
N/A with 480V or MW units.
PCR Photocontrol Receptacle only
N/A with MW units.
POLY Polycarbonate Sag Lens
In lieu of flat glass. N/A with 4X optics 750 or 1000w units.
XF Extended Flat Lens
Flat Glass lens with extended drop. Allows for the use of a larger lamp and still meet IES Full cutoff classification.
SG Sag Glass Lens
In lieu of flat glass.
HS Internal Houseside Shield
Supplied standard with FM optics. N/A above 400w with other optics.
QS Quartz Standby
N/A above 400w.

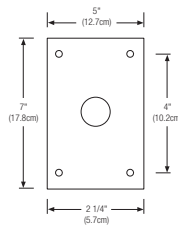
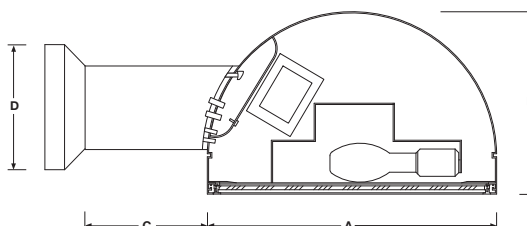
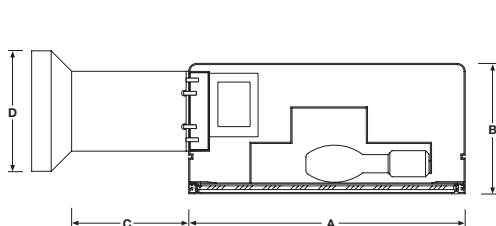
For 1000 Metal Halide, use:			For 1000 Pulse Start, use:		
Brand	Product Code	Catalog Number	Brand	Product Code	Catalog Number
Venture	53702	MS1000W/HOR/BT37/3K	G.E.	10389	MVR1000/U/BT37/PA
G.E.	18205	MVR1000/U/BT37	Venture	49111	MS1000W/HOR/T25/PS
Venture	15332	MH1000W/U/BT37	WARNING: Use of other lamps voids warranty		

DIMENSIONS

CW Style	Size	A	B	C	Approx. Weight
	17"	17"	8"	5"	29 lbs 13.1 kgs
	22"	22"	11"	7"	45 lbs 20.4 kgs

MW Style	Size	A	B	C	Approx. Weight
	17"	17"	11"	5"	29 lbs 13.1 kgs
	22"	22"	14"	7"	45 lbs 20.4 kgs

Wall Bracket
Mounting
Dimensions



GLOW TOP

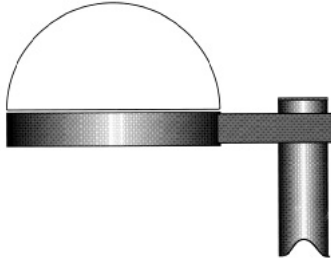




SL WTOP



CAG/MAG/MAGL ARM MOUNT GLOWTOP



GENERAL DESCRIPTION: The Gardco Arm Mounted Glowtop Form Ten products are cylindrical (CAG) or semi-spherical (MAG) sharp cutoff luminaires for high intensity discharge lamps up to 250MH. Translucent top section provides a soft uplight glow. Lantern style (MAGL) unit features a cast crown creating a traditional architectural form. Luminaires can accept one of four (4) interchangeable and rotatable precision segmented optical systems.

ORDERING

PREFIX	MOUNTING	DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS
CAG18	1	3	175MH	277	BRP	F
CAG18 Cylindrical MAG18 Semi-Spherical MAGL18 Semi-Spherical w/Lantern	1 Single 2 Twin @ 180° <i>Note: CAG/MAG/MAGL luminaires are compatible with RA4.5 poles only.</i>	1 Type I 3 Type III FM Type IV Q Type V	50MH¹ 70MH¹ 100MH¹ 150MH 175MH 200MH 250MH² 70HPS 100HPS 150HPS³	120 208 240 277 480 <i>480V available with 70 HPS and 100 HPS only.</i>	BRP BLP WP NP OC SC	HS F POLY
MH Metal Halide HPS High Pressure Sodium						

Notes

1. Medium base lamp
2. 120V or 277V only – F can ballast
3. Operates 55V lamp

FINISH

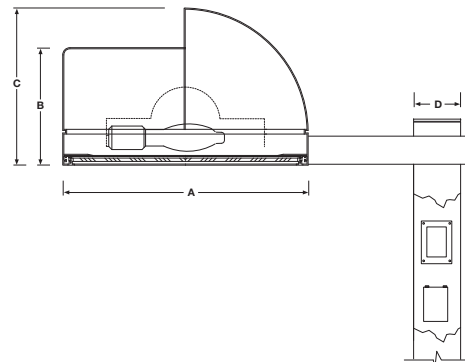
- BRP Bronze Paint
 BLP Black Paint
 NP Natural Aluminum Paint
 WP White Paint
 OC Optional Color Paint
*Specify RAL designation
 ex: OC-RAL7024.*
 SC Special Color Paint
Must supply color chip.

OPTIONS

- HS Internal Houseside Shield
Supplied standard with FM optics.
 F Fusing
 POLY Polycarbonate Sag Lens
In lieu of flat glass.

DIMENSIONS

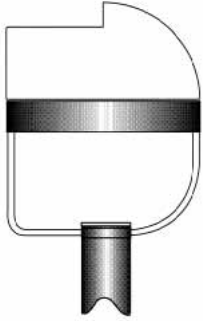
	A	B	C	D	EPA's Single Arm	Twin 180°	Approx. Weight (Single Arm)
CAG	18" 457mm	9 ³ / ₁₆ " 233mm		9 ¹ / ₂ " 114mm	1.5 ft² .14 m²	1.6 ft² .15 m²	27 lbs 12.2 kgs
MAG	18" 457mm		12" 305mm	4 ¹ / ₂ " 114mm	.85 ft² .08 m²	1.7 ft² .16 m²	27 lbs 12.2 kgs





SL  WTOP

CPG/MPG/MPGL YOKE MOUNT GLOWTOP



GENERAL DESCRIPTION: The Gardco Post Top Mounted Glowtop Form Ten products are cylindrical (CPG) or semi-spherical (MPG) sharp cutoff luminaires for high intensity discharge lamps up to 250MH. Translucent top section provides a soft uplight glow. Lantern style (MWGL) unit features a cast crown creating a classic architectural form. Luminaires can accept one of four (4) interchangeable and rotatable precision optical systems. Optional twin glow rings at post top are available in 4 colors and are illuminated by the primary source.

ORDERING

PREFIX	MOUNTING	DISTRIBUTION	WATTAGE	VOLTAGE	FINISH	OPTIONS
CPG18	1	3	175MH	277	BRP	HS
CPG18 Cylindrical MPG18 Semi-Spherical MPGL18 Semi-Spherical w/Lantern	1 Single <i>Note: CPG/MPG/MPGL luminaires are compatible with RA4.5 poles only.</i>	1 Type I 3 Type III FM Type IV Q Type V	50MH¹ 70MH¹ 100MH¹ 150MH 175MH 200MH 250MH² 70HPS 100HPS 150HPS³ MH Metal Halide HPS High Pressure Sodium	120 208 240 277 480 <i>480V available with 70 HPS and 100 HPS only.</i>	BRP BLP WP NP OC SC	HS F POLY GRC GRY GRG GRR

Notes

1. Medium base lamp
2. 120V or 277V only – F can ballast
3. Operates 55V lamp

FINISH

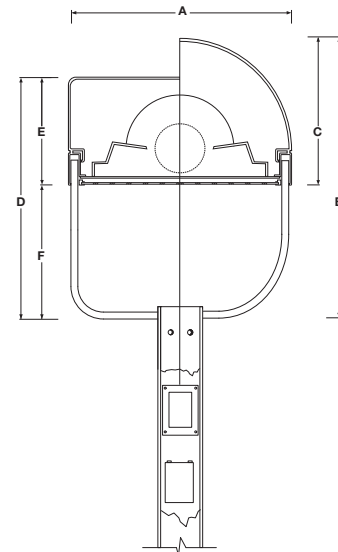
- BRP Bronze Paint
 BLP Black Paint
 NP Natural Aluminum Paint
 WP White Paint
 OC Optional Color Paint
Specify RAL designation ex: OC-RAL7024.
 SC Special Color Paint
Must supply color chip.

OPTIONS

- HS Internal Houseside Shield
Supplied standard with FM optics.
 F Fusing
 POLY Polycarbonate Sag Lens
In lieu of flat glass.
 GRC Glow Rings – Clear
 GRY Glow Rings – Yellow
 GRG Glow Rings – Green
 GRR Glow Rings – Red

DIMENSIONS

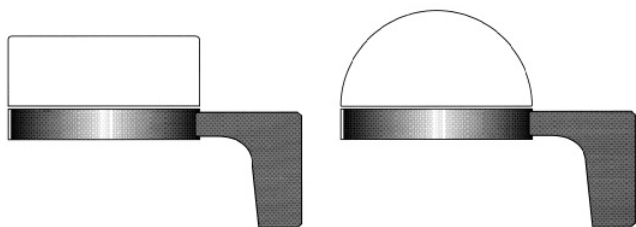
	A	B	C	D	E	F	EPA	Approx. Weight
CPG	18" 457mm			19 ⁵ / ₈ " 498mm	9 ¹ / ₈ " 232mm	10 ¹ / ₂ " 268mm	.85 ft ² .08 m ²	27 lbs 12.2 kgs
MPG/MPGL	18" 457mm	22 ¹ / ₂ " 571mm	12" 305mm			10 ¹ / ₂ " 268mm	.85 ft ² .08 m ²	27 lbs 12.2 kgs





SLWTOP

GLOWTOP



GENERAL DESCRIPTION: The Gardco Wall Mounted Glowtop Form Ten products are cylindrical (CWG) or semi-spherical (MWG) sharp cutoff luminaires for high intensity discharge lamps up to 175 watts. Translucent top section provides a soft uplight glow. Lantern style (MWGL) unit features a cast crown creating a classic architectural form. Luminaires can accept a choice of three (3) interchangeable precision optical systems.

ORDERING

PREFIX		MOUNTING	DISTRIBUTION		WATTAGE	VOLTAGE	FINISH	OPTIONS
CWG18		1	3		175MH	277	WP	F
CWG18	Cylindrical	1	1	Type I	50MH¹	120	BRP	HS
MWG18	Semi-Spherical		3	Type III	70MH¹	208	BLP	F
MWGL18	Semi-Spherical w/Lantern		FM	Type IV	100MH¹	240	WP	POLY
					150MH	277	NP	IM
					175MH	480	OC	
					70HPS		SC	
					100HPS			
					150HPS²			

MH Metal Halide
 HPS High Pressure Sodium

480V available with 70 HPS and 100 HPS only.

Notes

1. Medium base lamp
2. Operates 55V lamp

FINISH

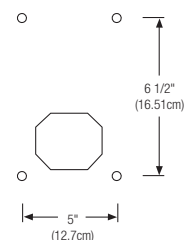
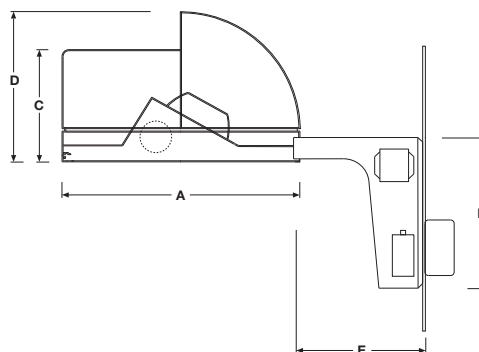
- BRP Bronze Paint
BLP Black Paint
NP Natural Aluminum Paint
WP White Paint
OC Optional Color Paint
*Specify RAL designation
ex: OC-RAL 7024.*
SC Special Color Paint
Must supply color chip.

OPTIONS

- | | |
|------|-----------------------------------------------------------------------|
| HS | Internal Houseside Shield
<i>Supplied standard with FM optics.</i> |
| F | Fusing |
| POLY | Polycarbonate Sag Lens
<i>In lieu of flat glass.</i> |
| IM | Inverted Mounting
<i>Available for DAMP locations only.</i> |

DIMENSIONS

	A	B	C	D	E
CWG	18" 457mm	9 ¹ / ₄ " 235mm	9 ³ / ₁₆ " 233mm		7" 178mm
MWG/MWGL	18" 457mm	9 ¹ / ₄ " 235mm		12" 305mm	7" 178mm



SPECIFICATIONS

Housing

HARDTOP (CA, CP, CW, MA, MP, MW) housing is one piece, 0.1" seamless aluminum with integral rolled circumferential reveal and lower section aperture incorporating a return flange stiffener to protect against housing edge deformation.

GLOWTOP (CAG, CPG, CWG, MAG, MPG, MWG) upper section is high impact resistant, white molded seamless acrylic providing a uniform uplight glow. Lower component is one piece, seamless spun aluminum incorporating a return flange stiffener to protect against housing edge deformation.

Arm

HARDTOP (CA, MA) extruded aluminum arm is secured to prewired fixture. Assembly is suitable for mounting to pole without requiring access to luminaire. Internal extruded channels capture tie rods for proper luminaire to pole alignment.

GLOWTOP (CAG, MAG) mounting arm is single piece die cast aluminum (single mount) or extruded aluminum (twin mount) and attaches to RA4.5 style pole without fasteners or welds visible from normal viewing angles.

Yoke

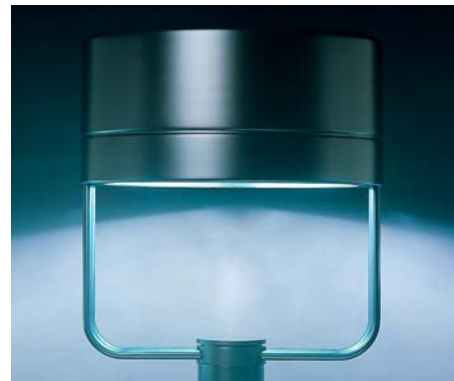
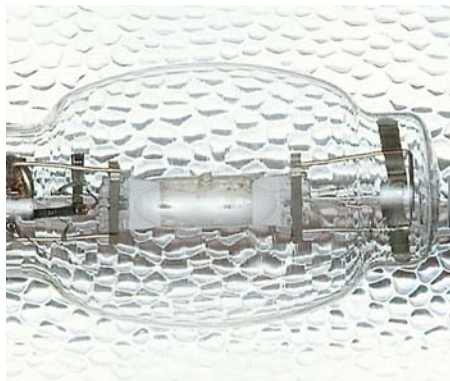
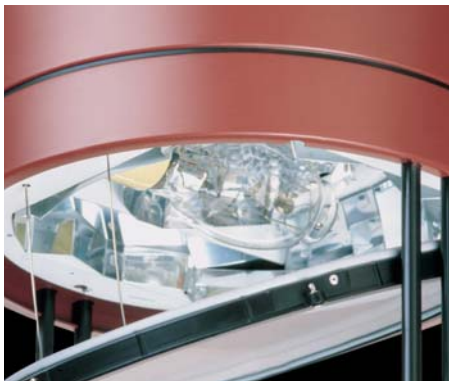
(CP, MP, CPG, MPG) The 9/16" (1.42cm) diameter parallel yokes of high strength, low mass schedule 40 steel are precision contoured to match the housing silhouette. Welds or fasteners are not visible at the luminaire or pole attachment. Yoke is electro-galvanized and coated with satin black polyurethane.

Wall Bracket

(CW, MW, CWG, MWG) Hooking die cast aluminum wall bracket conceals 10 gauge mounting plate. CW and MW arms extend the unit from wall and include an integral channel which captures tie rods for proper luminaire alignment. CWG, MWG, MWGL units secure ballast within wall bracket. Assembly hinges up for service.

Lens

One piece, die cast aluminum door frame retains the optically clear, heat and impact resistant tempered flat glass or sag polycarbonate in a sealed manner using hollow section, high compliance, memory retentive extruded silicone rubber. Concealed stainless steel hinge and two (2) flush 1/4 turn fasteners secure lens assembly to luminaire.



At the heart of the Gardco optical system, two levels of mirror-polished facets are precisely aligned with the arc tube of an HID lamp so as to present it with optimal reflective surfaces. The configured, hammertone upright recovery box directs lumens out and away from below the luminaire, eliminating hot spots. Precise lamp positioning assures full cutoff of light minimizing glare and controlling light trespass.

Optical Systems

The segmented Form Ten optical system is homogenous sheet aluminum, electro-chemically brightened, anodized, and sealed. The Form Ten X (4X) optics utilize 95% reflective material (available with 22" units only). The segmented reflectors are set in faceted arc tube image duplicator patterns to achieve desired distribution. Hardtop units feature a hammer-toned specular anodized aluminum upright recovery box to direct lamp lumens out and away from luminaire base eliminating hot spots. Glowtop units feature a heat strengthened borosilicate glass diffuser above lamp to uniformly illuminate acrylic top section. The mogul base lampholder is glazed porcelain with a nickel plated screw shell – all securely attached to the reflector assembly. 50w MH, 70w MH and 100w MH units

have medium base lampholders. All 22" luminaires utilizing horizontally positioned metal halide lamps feature lamp stabilizers ensuring precise arc tube positioning.

Electrical

Each high power factor ballast is the separate component type, capable of providing reliable lamp starting down to -20°F/-29°C.

Component-to-component wiring within the luminaire will carry no more than 80% of rated current and is listed by UL for use at 600 VAC at 301°F/150°C or higher. Plug disconnects are listed by UL for use at 600 VAC, 15A or higher.

Finish

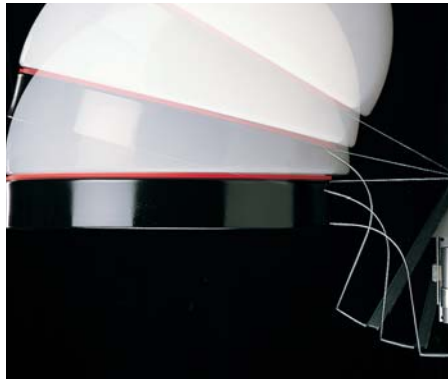
Spun housings are rotationally burnished before finishing to eliminate spinning lines and grooves. Hardtop units are available with Aluminum Association

Architectural Class I anodized finish. Paint is hardcoat, fade resistant, electrostatically applied TGIC polyester powdercoat Class 1 Architectural Anodized. Custom finishes may be liquid or powder.

Labels

All fixtures bear UL and/or CUL (where applicable) Wet Location labels.

Gardco reserves the right to change materials or modify the design of its product without notification as part of the company's continuing product improvement program. Gardco's segmented reflector optical system has been awarded U.S. Patent #3746854. The Gardco Form Ten X optical system has been awarded U.S. Patent #5690422.

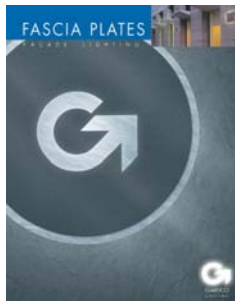


Installation features of Gardco luminaires assure proper alignment, tight fitting connection between arms, poles and luminaires and secure, weather-tight seals. Ample space is provided to access and engage mounting hardware. Because luminaires arrive to the jobsite completely prewired, only the primary feed splice is required to activate the luminaire.

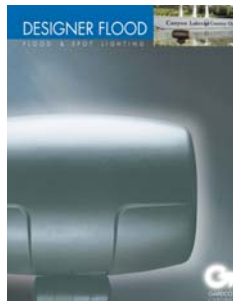
Gullwing



Fascia Plates



Floodlight



100 Line Sconces



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