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.

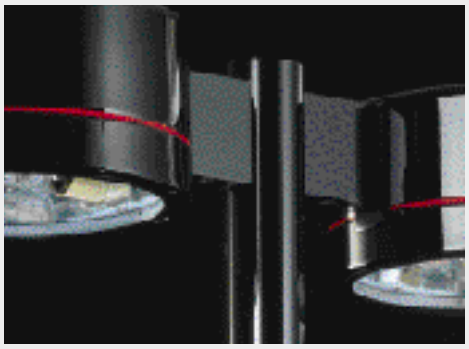
DURABILITY 14-15

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

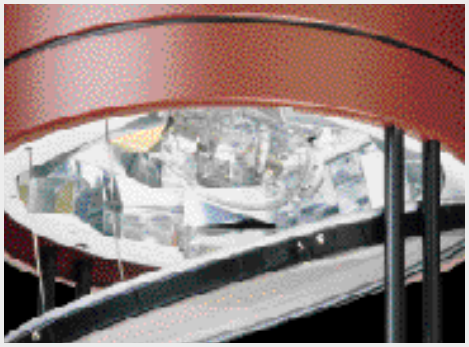
SPECIFICATIONS 16-31

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

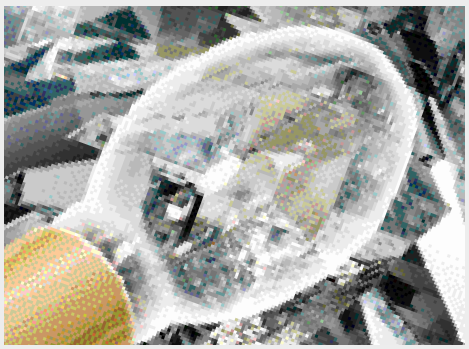
FORM



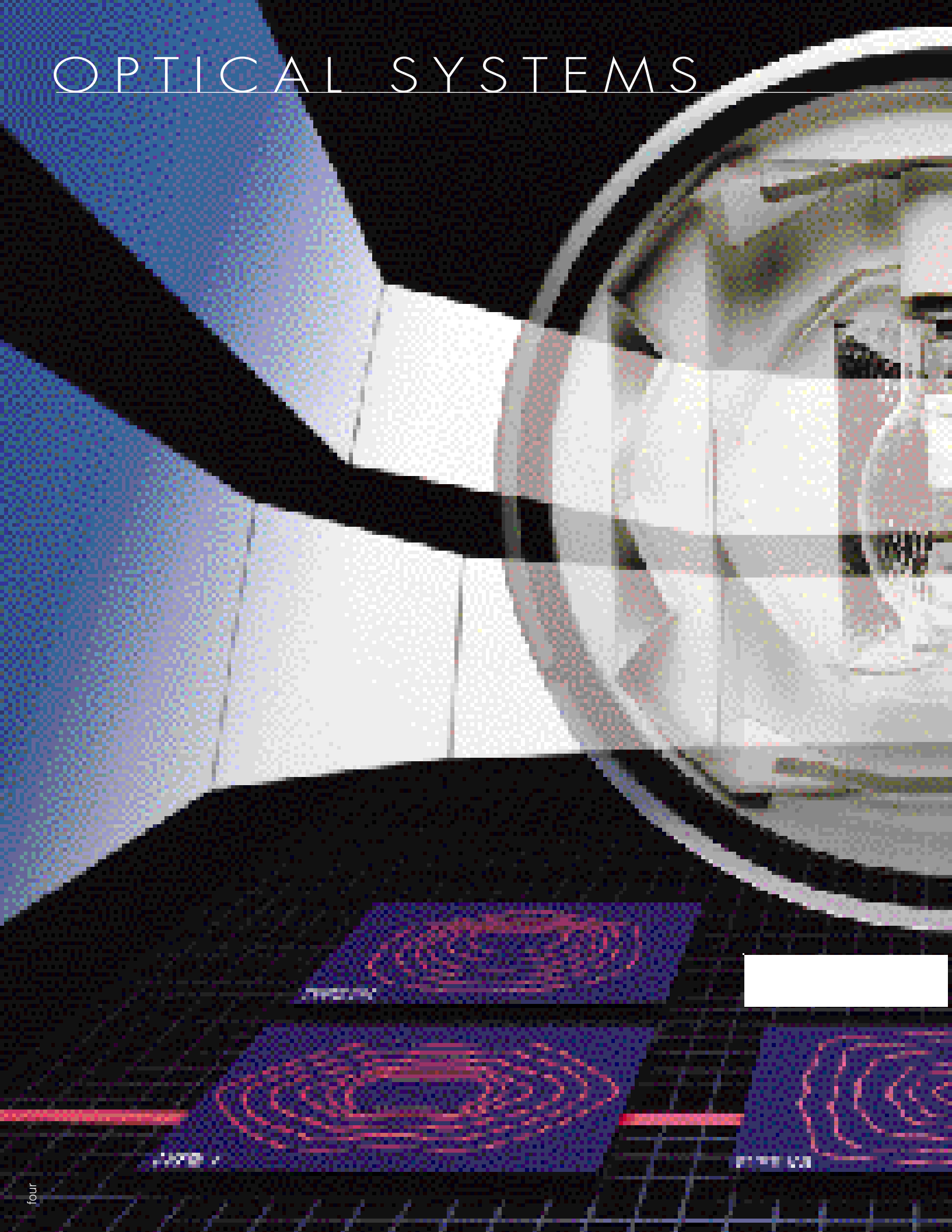
FUNCTION

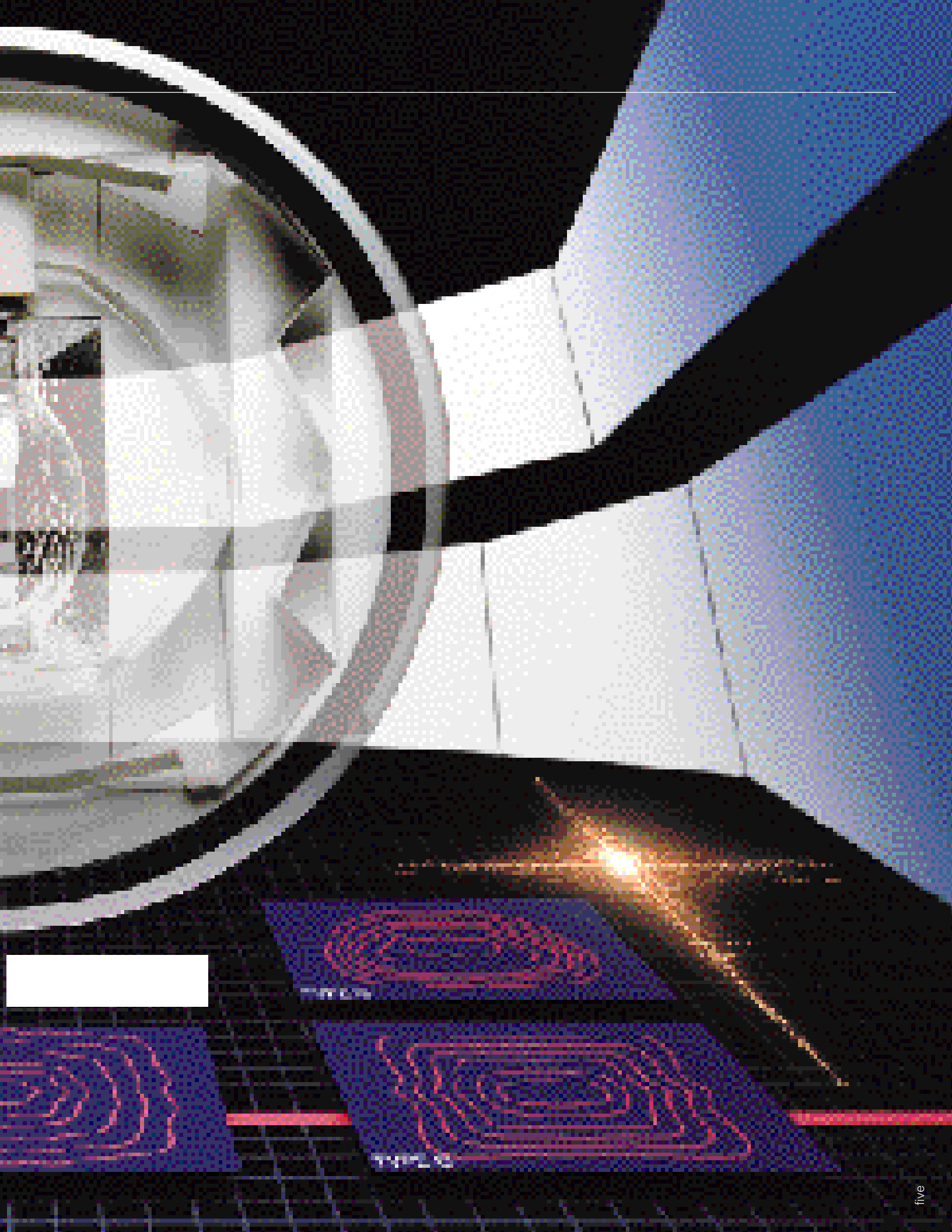


PERFORMANCE



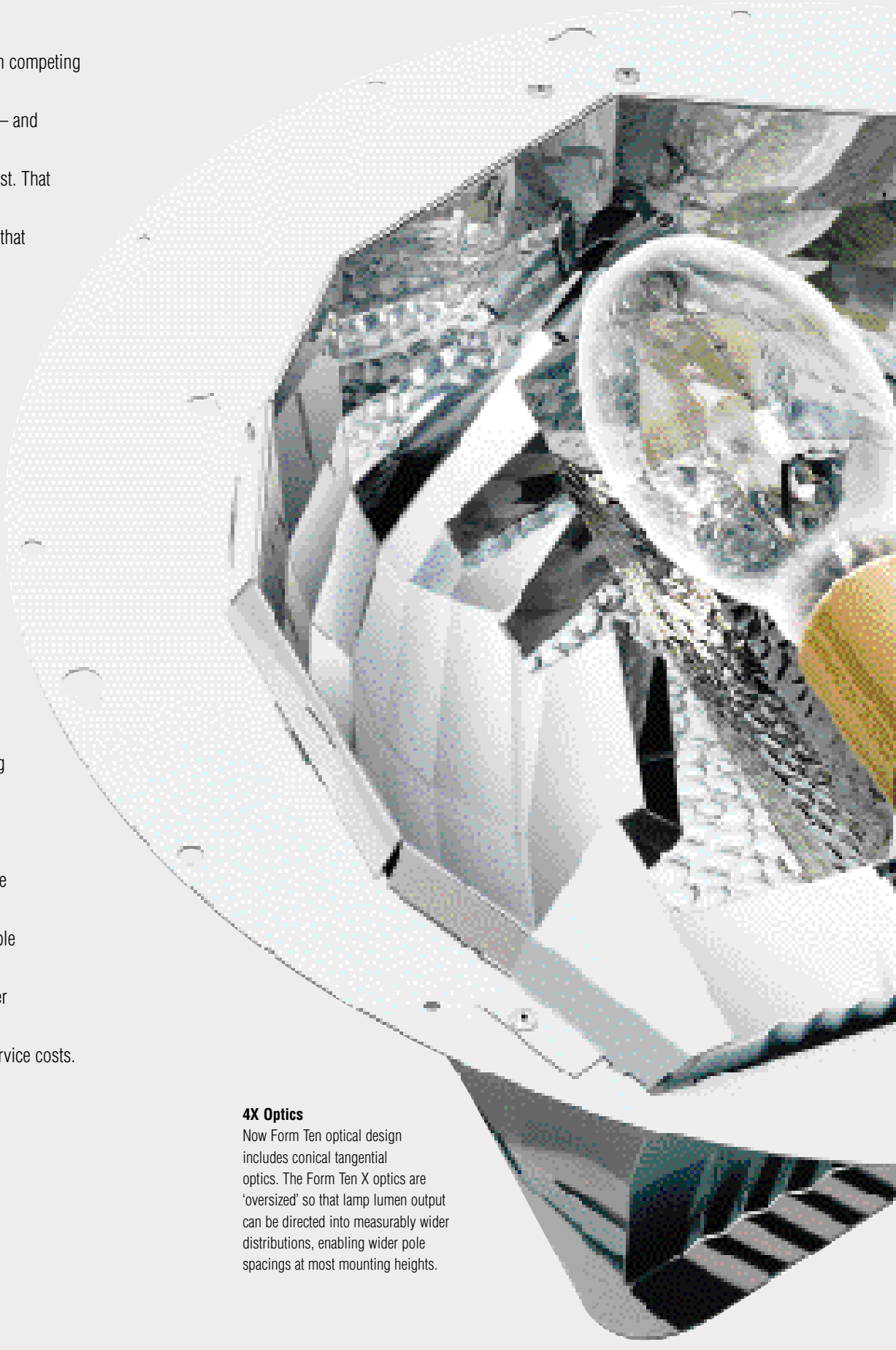
OPTICAL SYSTEMS



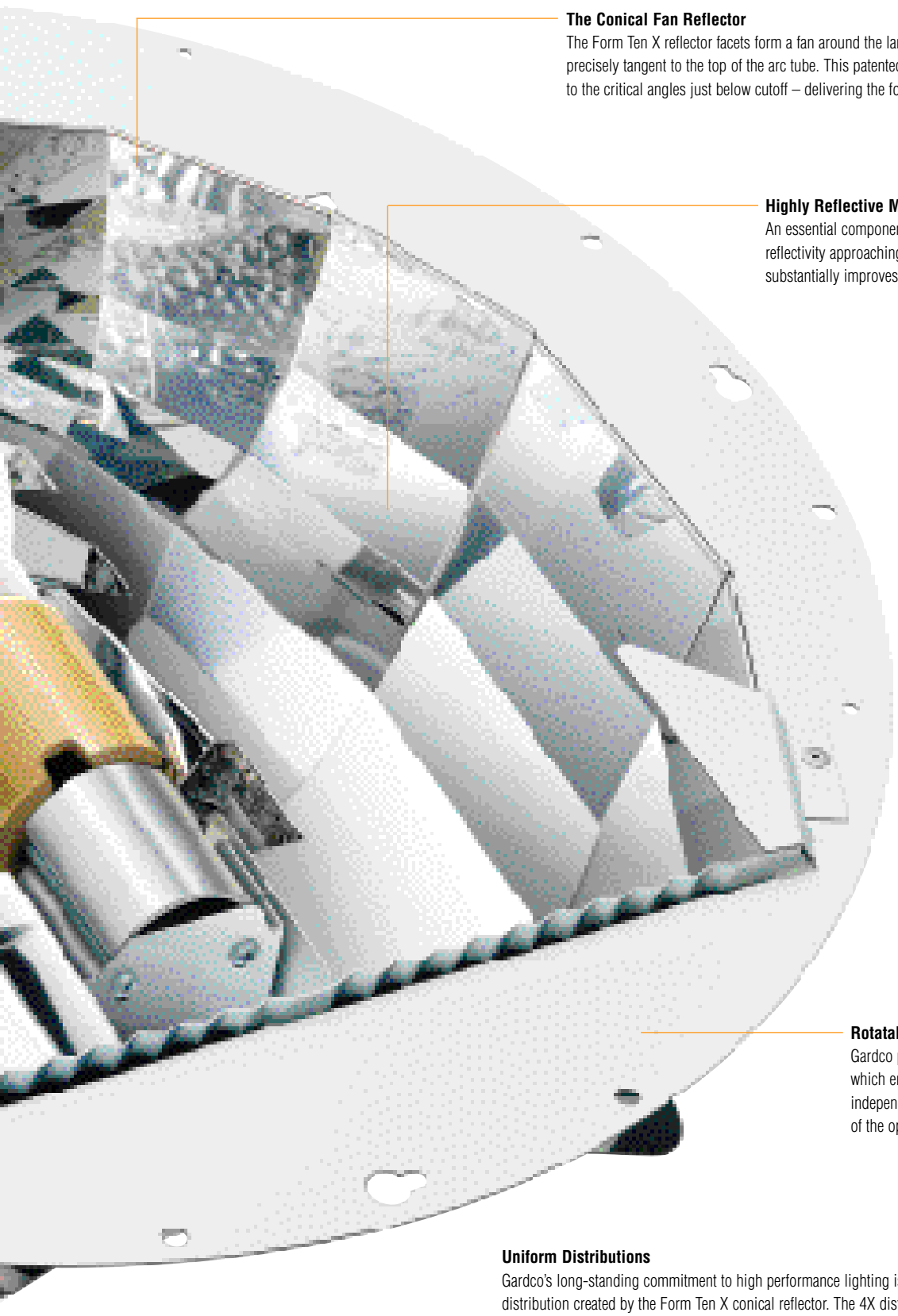


PERFORMANCE

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.

The Gardco Form Ten X optical system has been awarded U.S. Patent #5690422.

FLEXIBILITY

The Form Ten system is comprised of high performance optical reflectors – six multi-faceted, multi-layered reflectors which are unequaled 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

- Wide Area Lighting
- Wide Roadway
- Perimeter Only Lighting
- Low Glare Requirements
- 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

- Narrow Walkways
- Building Alleyways
- 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.

Applications

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

Typical Spacing

Single luminaire:
5 1/2 MH on center.

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

Type Q

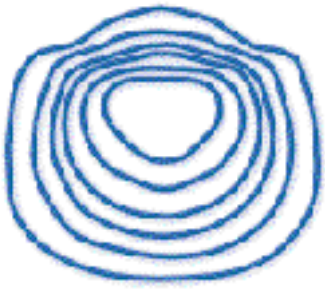
Type Q optics produce a symmetrical square distribution pattern that distributes light equally on all sides of the luminaire. The optical system is universal for most area lighting applications.

Applications

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

Typical Spacing

5 x 5 MH on center.



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.

Applications

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

Typical Spacing

2 MH forward x 4 MH lateral.

Type VS

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

Applications

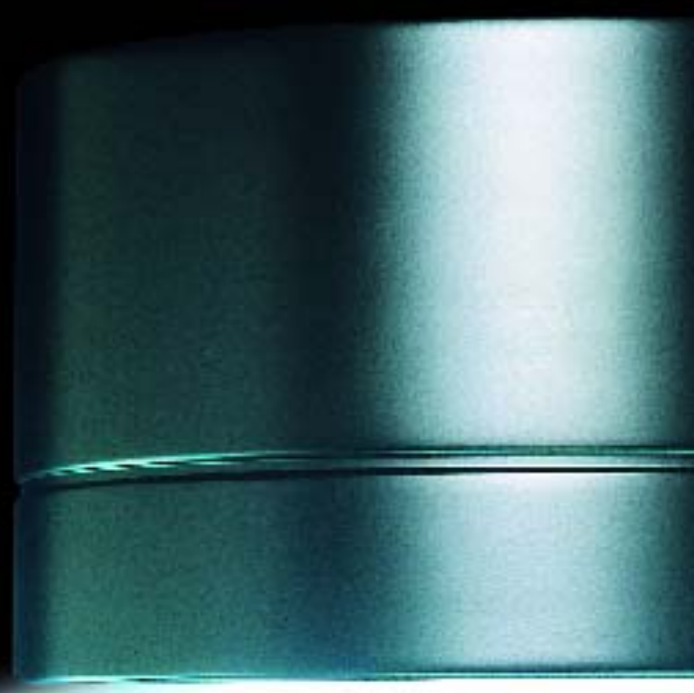
- Wide Area Lighting
- Higher Glare Acceptable
- Stringent Uniformity Requirements

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.

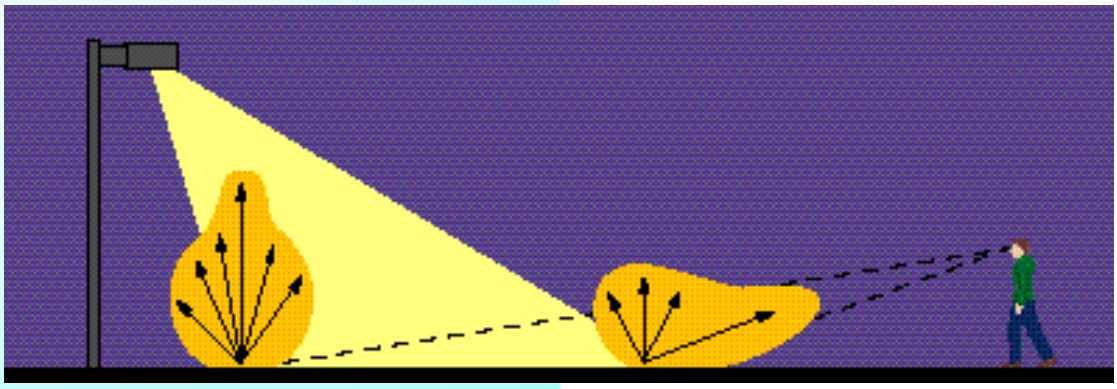
UNIFORM PAVEMENT LUMINANCE

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

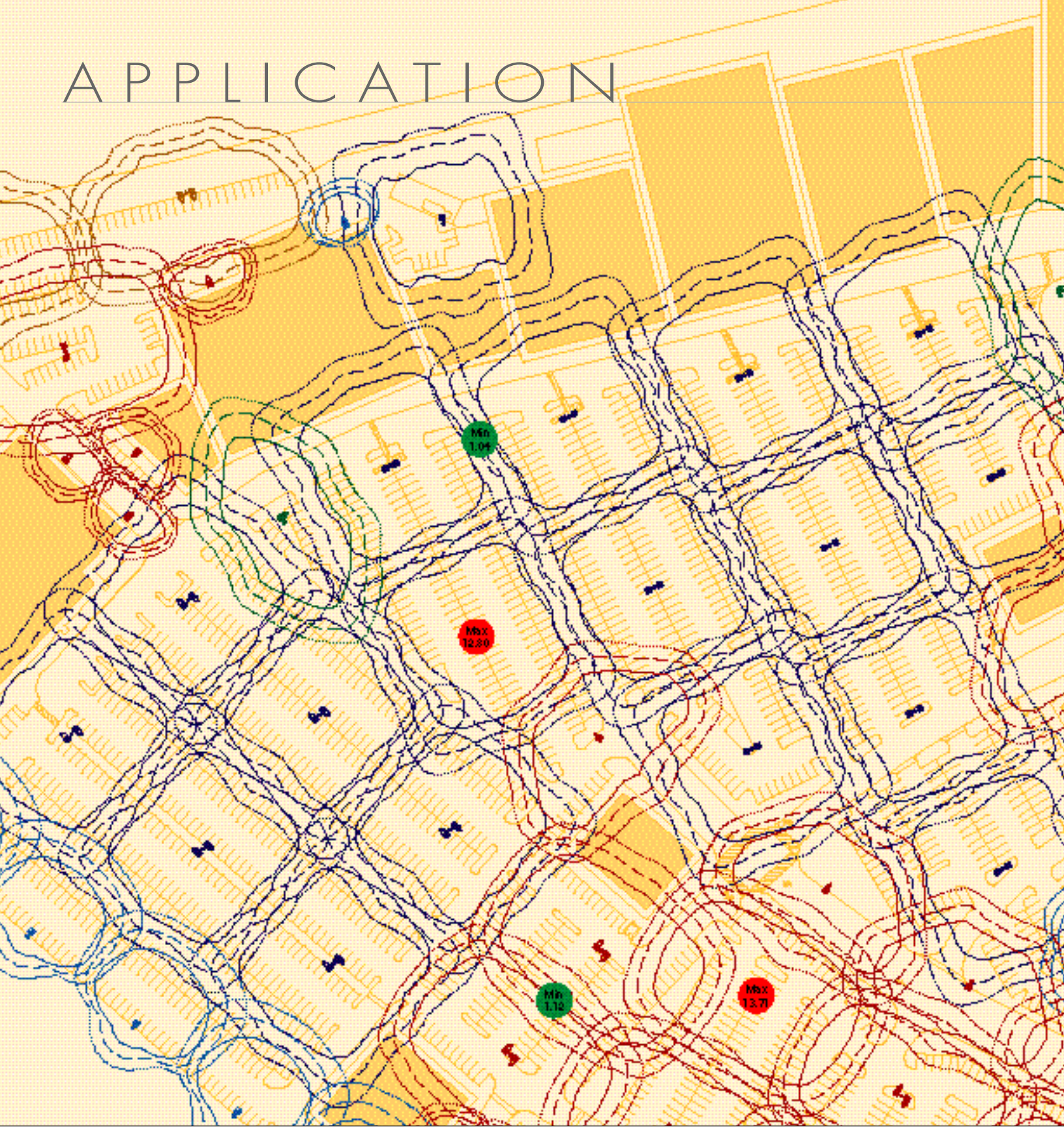
The factor most destructive to lighting performance is glare. Simply stated, glare is bright direct light from an unshielded source. At night, the human eye is drawn to the most luminous element in its field of vision. Uncontrolled glare is distracting, causes discomfort to the viewer, and adversely 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.

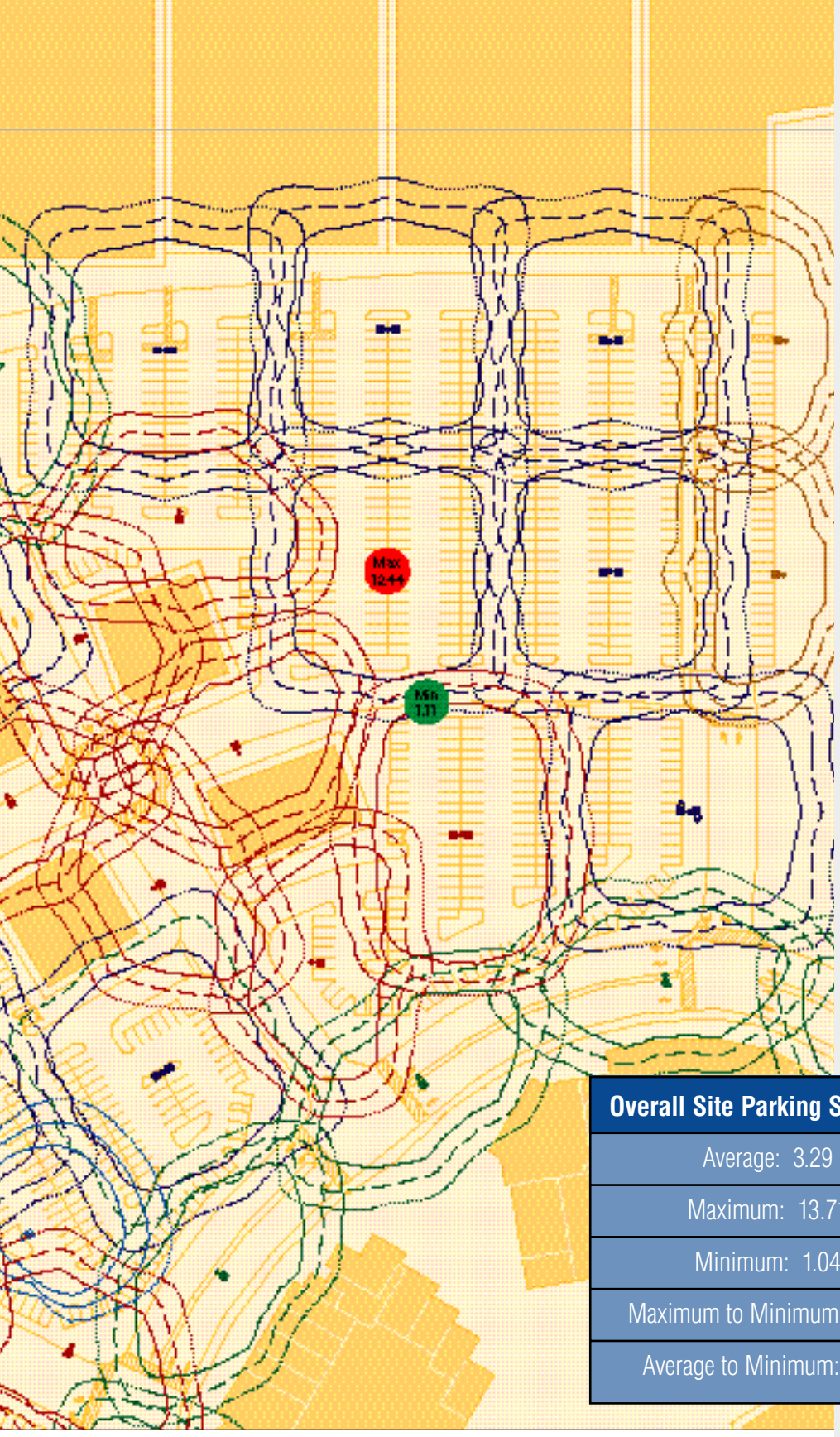
It is because of this phenomenon that Gardco recommends designing to footcandle levels of 10-to-1 to 15-to-1 maximum to minimum, which will result in a site that appears uniformly lit.



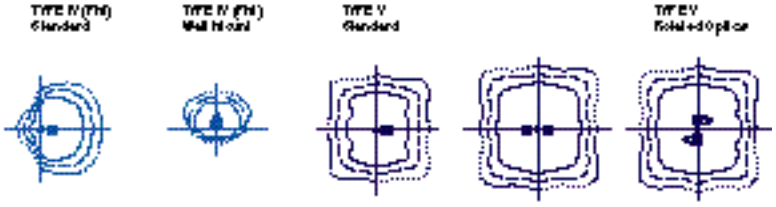
Because the eye sees reflected light, sites lit to extremely uniform levels appear dark directly under luminaires.

APPLICATION





Overall Site Parking Statistics
Average: 3.29
Maximum: 13.71
Minimum: 1.04
Maximum to Minimum: 13:18
Average to Minimum: 3:16



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.

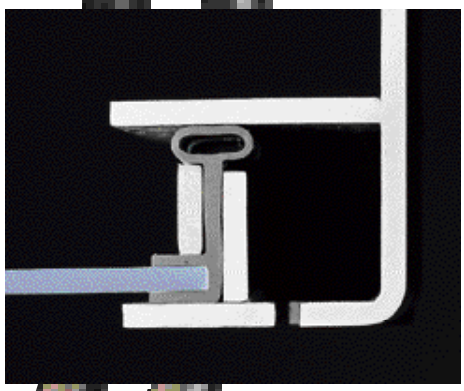
Mounting heights are of fundamental importance and have a direct influence on the number and location of luminaires, wattages of lamps, and initial and life cycle costs. Mounting height may be restricted by local ordinance, accessibility and capability of service equipment and the spatial relationship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

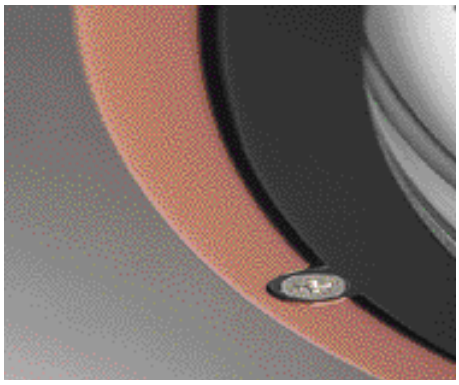
A footcandle printout verifies that the objectives of the lighting plan are accomplished… a one footcandle minimum maintained, with a maximum to minimum ratio no greater than 15:1.

Construction: Clean material transitions



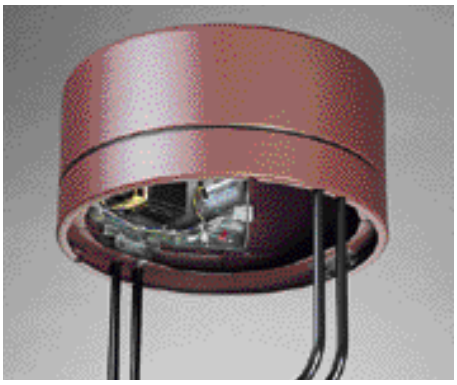
Complete, permanent sealing

FEATURES



Service: Captive, quarter-turn fasteners

Lens and optical systems hinge down



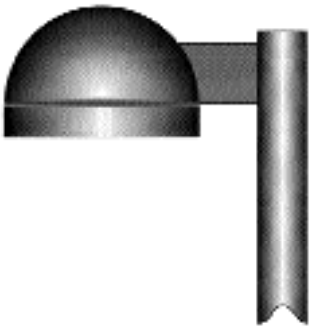
Integrated ballast assembly

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
MA17 17" Semi-Spherical
CA22 22" Cylindrical
MA22 22" Semi-Spherical

1 Single
2 Twin
2@90 Twin @ 90°
3 Triple @ 90°
3@120 Triple @ 120°
4 Quad

Horizontal Lamp
1 Type I
3 Type III
4X[1, 2] Type IV *(22" only)*
FM Type IV
Q Type V

Vertical Lamp
VS Type V

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.

See Table Below

120
208
240
277
347
480
QUAD

120/208/240/277 Factory tied to 277V

BLA
BRA
NA
BRP
BLP
WP
NP
OC
SC

HS **QS**
F **PTF2**
LF **PTF3**
MF **PTF4**
PC **XF**
PCR **SG**
POLY

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
G.E.	10389	MVR1000/U/BT37/PA
Venture	49111	MS1000W/HOR/T25/PS

WARNING: Use of other lamps voids warranty

Notes

1. *22" luminaires, 400w and below are supplied with flat glass lens standard. For wattages above 400w, "XF" flat lens is supplied standard.*
2. *MH/PSMH 400w Type 4X luminaires require the E28/BT28 reduced jacket lamp.*
3. *Medium base lamp.*
4. *Available with vertical lamp optics only.*
5. *Available with horizontal lamps only.*
6. *Operates 55V lamp.*
7. *Uses BT37 lamps only.*
8. *Furnished standard with Sag Glass Lens.*
9. *Available with 4X and VS optics only.*
10. *M149 only. Horizontal optics require MS750/PS/BU-HOR/BT37 lamp.*
11. *Horizontal optics only.*
12. *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.

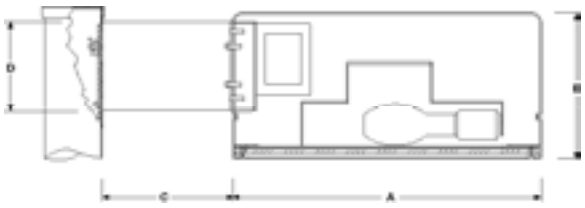
OPTIONS

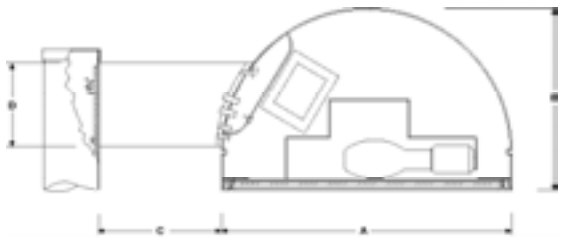
HS Internal House Side Shield
Supplied standard with FM optics.
F Fusing
In Head. N/A above 400w.
LF In-Line/In-Pole Fusing
MF Mast Arm Fitter
PC Photocontrol and Receptacle
N/A with MA units or 480V.
PCR Photocontrol Receptacle only
N/A with MA units.
POLY Polycarbonate Sag Lens
In lieu of flat glass. 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	EPA's Twin 180°	EPA's 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	EPA's Twin 180°	EPA's 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





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

PREFIX

CP17 17" Cylindrical
MP17 17" Semi-Spherical
CP22 22" Cylindrical
MP22 22" Semi-Spherical

MOUNTING

See Table Below

Mounting	Poles			Tenons			
	SRS3 MIN O.D. 2.88" MAX O.D. 3.00"	RA4/SRS4 MIN O.D. 3.58" MAX O.D. 3.85" M/C17 / MIN O.D. 3.50" MAX O.D. 4.00" M/C22	RA5/SRS5 MIN O.D. 4.62" MAX O.D. 4.85"	T2 2 3/8" O.D. X 4"	T3 2 7/8" O.D. X 4"	3" O.D. X 4"	T4 4" O.D. X 6"
MP17	P11 (ill.2)	P12 (ill.1)	N/A	T14 (ill.3)	T15 (ill.3)	T16 (ill.3)	N/A
CP17	P21 (ill.2)	P22 (ill.1)	N/A	T24 (ill.4)	T25 (ill.3)	T26 (ill.3)	N/A
MP22	P31 (ill.5)	P32 (ill.2)	P33 (ill.1)	T34 (ill.4)	T35 (ill.4)	T36 (ill.4)	T37 (ill.3)
CP22	P41 (ill.5)	P42 (ill.2)	P43 (ill.1)	T44 (ill.4)	T45 (ill.4)	T46 (ill.4)	T47 (ill.3)

DISTRIBUTION

Horizontal Lamp
1 Type I
3 Type III
4X[1,2] Type IV *(22" only)*
FM Type IV
Q Type V

Vertical Lamp
VS Type V

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.

WATTAGE

See Table Below

VOLTAGE

120
208
240
277
347
480
QUAD
120/208/240/277 factory tied to 277V

FINISH

BLA
BRA
NA
BRP
BLP
WP
NP
OC
SC

OPTIONS

F **GRY**
LF **GRG**
PC **GRR**
PCR **XF**
POLY **SG**
HS
QS
GRC

WATTAGE

CP17	MP17	CP22	MP22
50MH[3]	50MH[3]	250MH	250MH
70MH[3]	70MH[3]	400MH	400MH
100MH[3]	100MH[3]	1000MH[7,9,10]	250PSMH
150MH[3]	150MH[3]	250PSMH	320PSMH
175MH	175MH	320PSMH	350PSMH
200MH	175PSMH[4,10]	350PSMH	400PSMH
250MH	70HPS	400PSMH	450PSMH[4]
175PSMH[4]	100HPS	450PSMH[4]	250HPS
250PSMH[5]	150HPS[6]	750PSMH[8]	400HPS
70HPS		1000PSMH[9,10]	
100HPS		250HPS	
150HPS[6]		400HPS	
		750HPS[7]	

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

Notes

1. *22" luminaires, 400w and below are supplied with flat glass lens standard. For wattages above 400w, "XF" flat lens is supplied standard.*
2. *MH/PSMH 400w Type 4X luminaires require the E28/BT28 reduced jacket lamp.*
3. *Medium base lamp.*
4. *Available with vertical lamp optics only.*
5. *Available with horizontal lamp optics only.*
6. *Operates 55V lamp.*
7. *Uses BT37 or E37 lamps only.*
8. *M149 only. Horizontal optics require MS750/PS/BU-HOR/BT37 lamp.*
9. *Available with 4X or VS optics only.*
10. *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
Specify RAL designation ex: OC-RAL7024.
SC Special Color Paint
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
In lieu of flat glass. N/A with 4X optics 750 or 1000w units.
HS Internal Houseside Shield
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
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.

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:

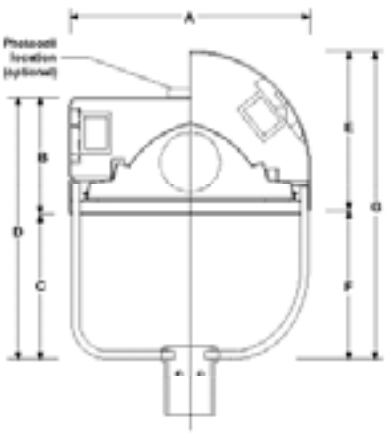
Brand	Product Code	Catalog Number
G.E.	10389	MVR1000/U/BT37/PA
Venture	49111	MS1000W/HOR/T25/PS

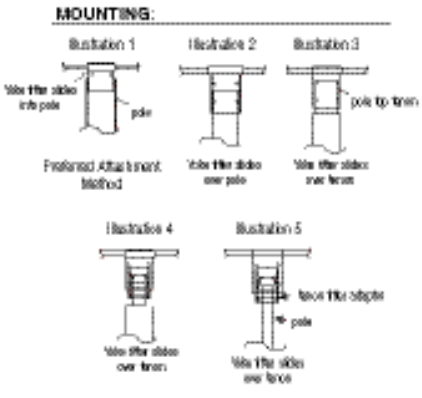
WARNING: Use of other lamps voids warranty

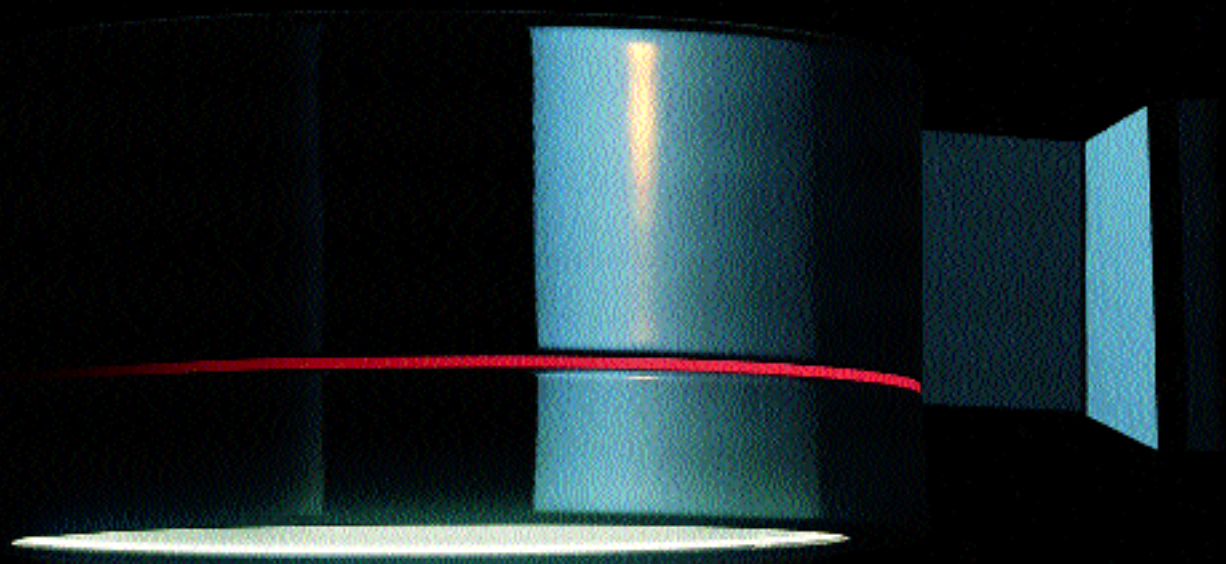
DIMENSIONS

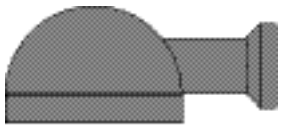
CP Style	Size	A	B	C	D	EPA	Approx. Weight
	17"	17" 432mm	8" 203mm	10" 254mm	18" 457mm	.7 ft² .07 m²	31 lbs 14 kgs
	22"	22" 559mm	11" 279mm	11" 279mm	5" 559mm	1.0 .09 m²	50 lbs 22.6 kgs

MP Style	Size	A	E	F	G	EPA	Approx. Weight
	17"	17" 432mm	11" 279mm	10" 254mm	21" 533mm	.7 ft² .07 m²	32 lbs 14 kgs
	22"	22" 559mm	14" 356mm	11" 279mm	25" 635mm	1.0² .09 m²	50 lbs 22.6 kgs

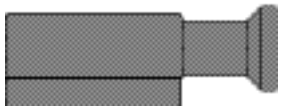








MW



CW

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

PREFIX

CW17 17" Cylindrical
MW17 17" Semi-Spherical
CW22 22" Cylindrical
MW22 22" Semi-Spherical

CONFIGURATION

1 Single

DISTRIBUTION

Horizontal Lamp
1 Type I
3 Type III
4X[1,2] Type IV *(22" only)*
FM Type IV

WATTAGE

See Table Below

VOLTAGE

120
208
240
277
347
480
QUAD
120/208/240/277 factory tied to 277V

FINISH

BLA
BRA
NA
BRP
BLP
WP
NP
OC
SC

OPTIONS

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

1. *22" luminaires, 400w and below are supplied with flat glass lens standard. For wattages above 400w, "XF" flat lens is supplied standard.*
2. *MH/PSMH 400w Type 4X luminaires require the E28/BT28 reduced jacket lamp*
3. *Medium base lamp*
4. *Operates 55V lamp.*
5. *Uses BT37 lamps only.*
6. *Available with 4X optics only*
7. *M149 only. Horizontal optics require MS750/PS/BU-HOR/BT37 lamp*
8. *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:

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:

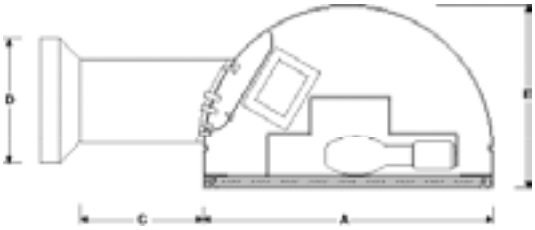
Brand	Product Code	Catalog Number
G.E.	10389	MVR1000/U/BT37/PA
Venture	49111	MS1000W/HOR/T25/PS

WARNING: Use of other lamps voids warranty

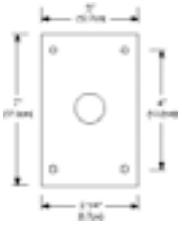
DIMENSIONS

CW Style	Size	A	B	C	Approx. Weight
	17"	17"	8"	5"	29 lbs
		432mm	203mm	127mm	13.1 kgs
	22"	22"	11"	7"	45 lbs
		559mm	279mm	178mm	20.4 kgs

MW Style	Size	A	B	C	Approx. Weight
	17"	17"	11"	5"	29 lbs
		432mm	279mm	127mm	13.1 kgs
	22"	22"	14"	7"	45 lbs
		559mm	356mm	178mm	20.4 kgs



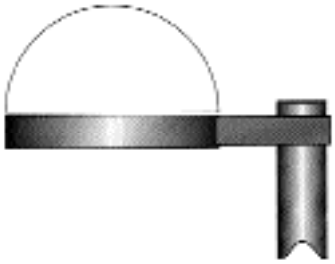
Wall Bracket Mounting Dimensions



COLD


GLOWTOP

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

PREFIX

CAG18 Cylindrical
MAG18 Semi-Spherical
MAGL18 Semi-Spherical w/Lantern

MOUNTING

1 Single
2 Twin @ 180°

Note: CAG/MAG/MAGL luminaires are compatible with RA4.5 poles only.

DISTRIBUTION

1 Type I
3 Type III
FM Type IV
Q Type V

WATTAGE

50MH[1]
70MH[1]
100MH[1]
150MH
175MH
200MH
250MH[2]

70HPS
100HPS
150HPS[3]

MH Metal Halide
HPS High Pressure Sodium

VOLTAGE

120
208
240
277
480

480V available with 70 HPS and 100 HPS only.

FINISH

BRP
BLP
WP
NP
OC
SC

OPTIONS

HS
F
POLY

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

FINISH

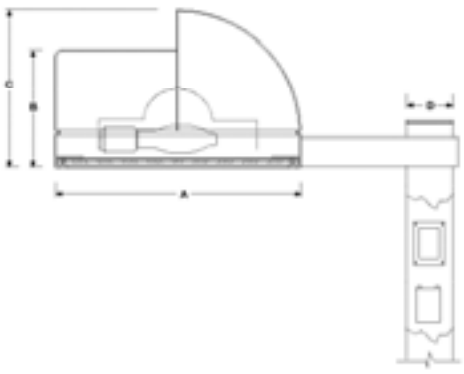
BRP Bronze Paint
BLP Black Paint
NP Natural Aluminum Paint
WP White Paint
OC Optional Color Paint
Specify RAL designation ex: OC-RAL7024.
SC Special Color Paint
Must supply color chip.

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




GLOWTOP

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

PREFIX

CPG18 Cylindrical
MPG18 Semi-Spherical
MPGL18 Semi-Spherical w/Lantern

MOUNTING

1 Single

Note: CPG/MPG/MPGL luminaires are compatible with RA4.5 poles only.

DISTRIBUTION

1 Type I
3 Type III
FM Type IV
Q Type V

WATTAGE

50MH[1]
70MH[1]
100MH[1]
150MH
175MH
200MH
250MH[2]

70HPS
100HPS
150HPS[3]

MH Metal Halide
HPS High Pressure Sodium

VOLTAGE

120
208
240
277
480

480V available with 70 HPS and 100 HPS only.

FINISH

BRP
BLP
WP
NP
OC
SC

OPTIONS

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

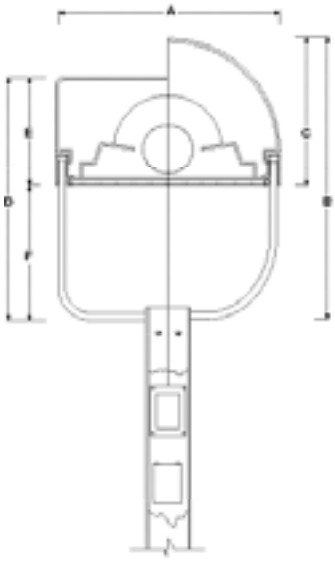
BRP Bronze Paint
BLP Black Paint
NP Natural Aluminum Paint
WP White Paint
OC Optional Color Paint
Specify RAL designation ex: OC-RAL7024.
SC Special Color Paint
Must supply color chip.

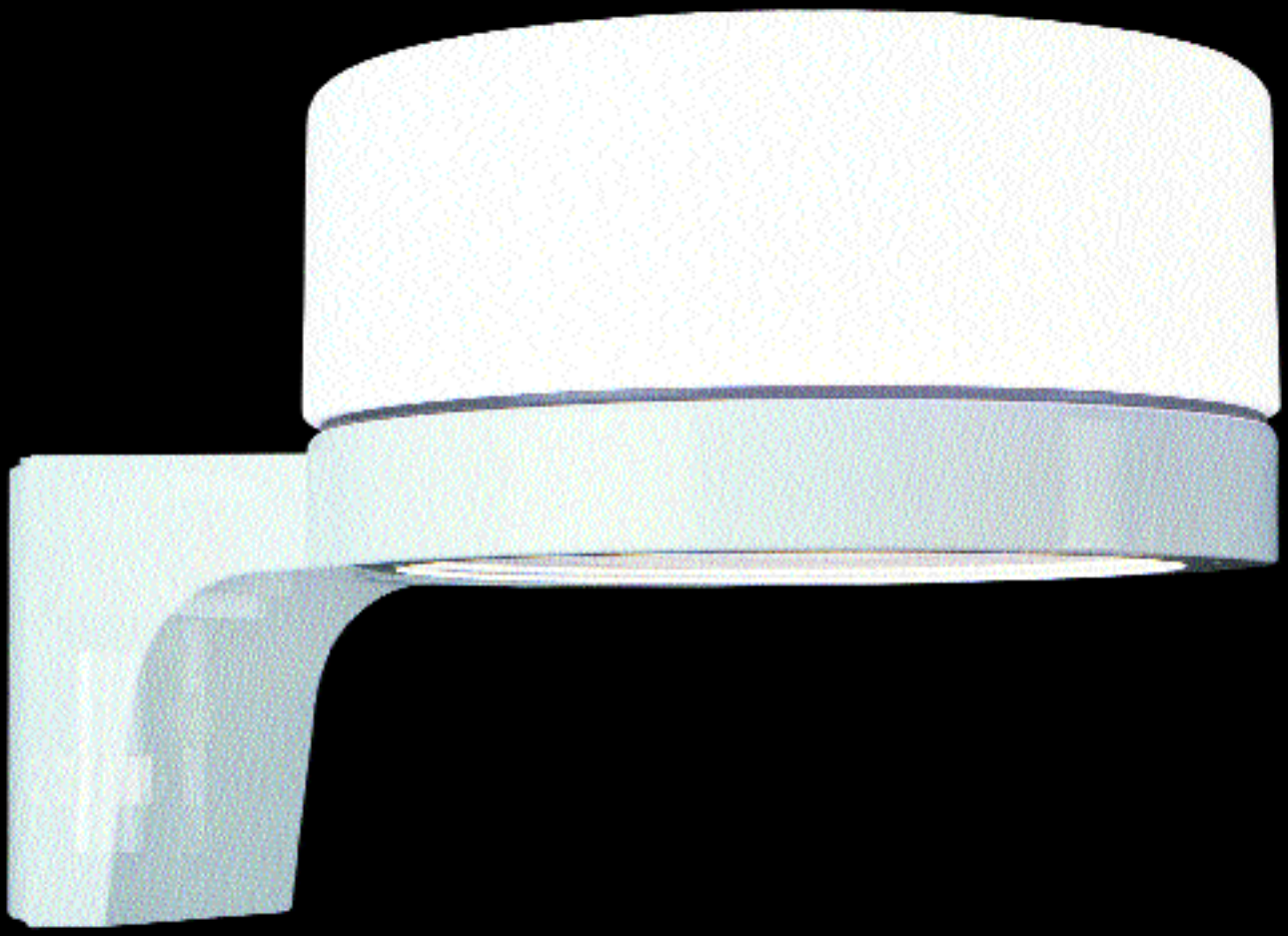
OPTIONS

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

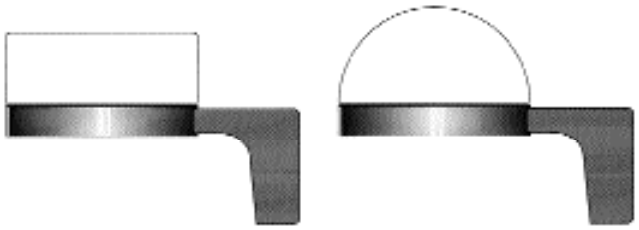
	A	B	C	D	E	F	EPA	Approx. Weight
CPG	18"			19 5/8"	9 1/8"	10 1/2"	.85 ft²	27 lbs
	457mm			498mm	232mm	268mm	.08 m²	12.2 kgs
MPG/MPGL	18"	22 1/2"	12"			10 1/2"	.85 ft²	27 lbs
	457mm	571mm	305mm			268mm	.08 m²	12.2 kgs





GLOWTOP

CWG/MWG/MWGL WALL MOUNT 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

PREFIX

CWG18 Cylindrical
MWG18 Semi-Spherical
MWGL18 Semi-Spherical w/Lantern

MOUNTING

1

DISTRIBUTION

1 Type I
3 Type III
FM Type IV

WATTAGE

50MH[1]
70MH[1]
100MH[1]
150MH
175MH

70HPS
100HPS
150HPS[2]

MH Metal Halide
HPS High Pressure Sodium

VOLTAGE

120
208
240
277
480

480V available with 70 HPS and 100 HPS only.

FINISH

BRP
BLP
WP
NP
OC
SC

OPTIONS

HS
F
POLY
IM

Notes
1. Medium base lamp
2. Operates 55V lamp

FINISH

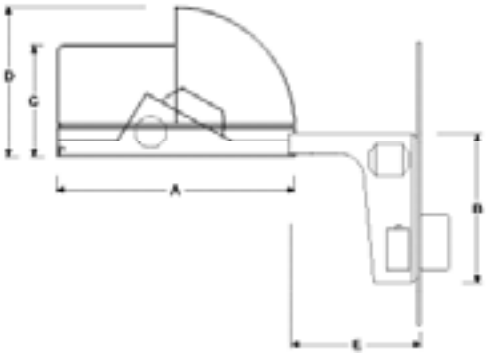
BRP Bronze Paint
BLP Black Paint
NP Natural Aluminum Paint
WP White Paint
OC Optional Color Paint
Specify RAL designation ex: OC-RAL7024.
SC Special Color Paint
Must supply color chip.

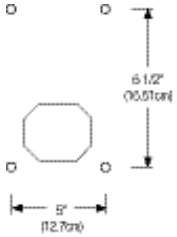
OPTIONS

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

DIMENSIONS

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

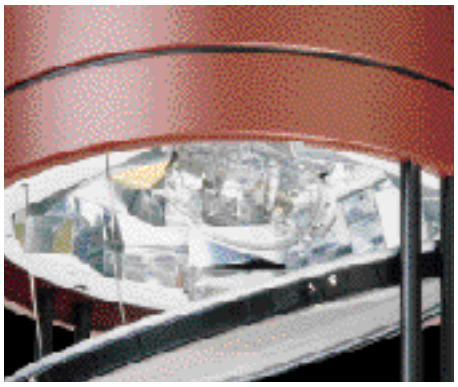
Arm
HARDTOP (CA, MA) extruded aluminum arm is secured to prewired fixture. Assembly is suitable for mounting to pole without requiring access to luminaire. Internal extruded channels capture tie rods for proper luminaire to pole alignment.

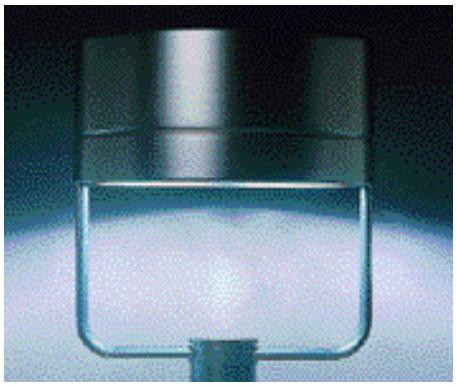
GLOWTOP (CAG, MAG) mounting arm is single piece die cast aluminum (single mount) or extruded aluminum (twin mount) and attaches to RA4.5 style pole without fasteners or welds visible from normal viewing angles.

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 uplight 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 uplight 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.

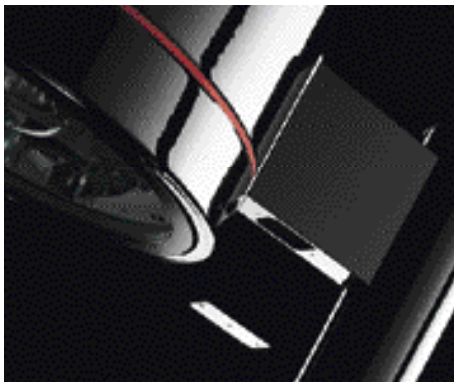
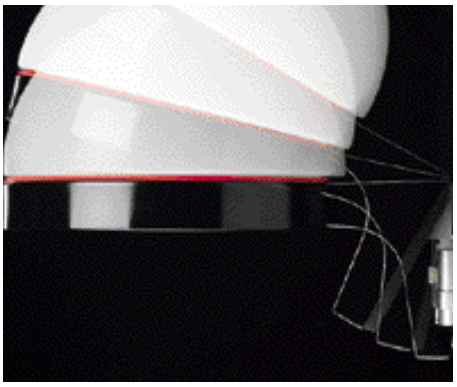
Electrical
Each high power factor ballast is the separate component type, capable of providing reliable lamp starting down to -20°F/-29°C.

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

GARDCO
LIGHTING

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