

Philips TuffGuard™ High
Intensity Discharge
Coated Lamps

*Ideal for manufacturing and
warehouse applications*

TUFFGUARD™ SERIES



Outstanding performance and reliability

Philips TuffGuard™ High Intensity Discharge Coated Lamps offer a range of switch start and high pressure sodium lamps that provide long life, high efficiency and high lumen output.

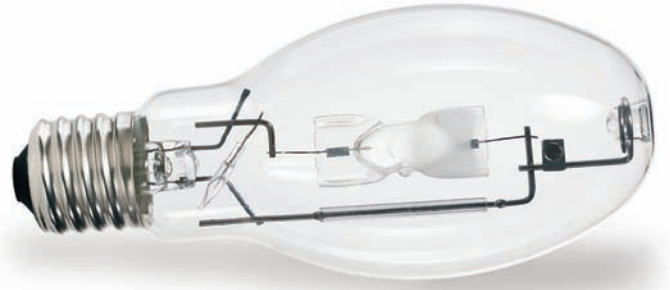
Philips TuffGuard™ coated lamps

- Contains glass fragments in the event the lamp is accidentally dropped or broken
- Easy-to-clean non-stick coating

Coating is not designed to contain an arc-tube rupture

PHILIPS
sense and simplicity

Philips TuffGuard™ High Intensity Discharge Coated Lamps—Metal Halide Lamps



Ordering, Electrical and Technical Data

Product Number	Description	Nom. Watts	Volts	Pkg. Qty.	Bulb	Base	Rated Avg. Life (Hrs) ¹	Approx. Initial Lumens ²	Availability
20211-9	MH175/U 12PK TG	175	132	12	ED-28	Mogul	10,000	14,700	Stocked
20212-7	MH250/U 12PK TG	250	133	12	ED-28	Mogul	10,000	21,250	Stocked
21147-4	MS360/BU/EW 6PK TG	360	120	6	ED-37	Mogul	20,000	36,000	Stocked
20213-5	MH400/U 6PK TG	400	135	6	ED-37	Mogul	20,000	36,000	Stocked

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.

2) Protective coating may reduce actual lumens by up to 5%.

Above specifications are subject to change without notice.

WARNINGS:

- Coating can withstand bulb wall temperatures up to 500°F, subject to the following conditions:
 - Lamp must be installed and operated in ambient temperature below 150°F.
 - Lamp is not used in fixture that does not allow heat dissipation.
- UV radiation emitted from metal halide lamps may deteriorate the coating over time.
- The coating is not designed to contain an arc-tube rupture.
- Under extreme conditions glass fragments may escape the coating.
- Only protective shrouded lamps are resistant to metal halide non-passive failure.

Made to order requires 3 week lead time
(No product returns on made to order lamps)

RECOMMENDED WARNINGS, CAUTIONS, AND OPERATING INSTRUCTIONS For Standard Metal Halide Lamps (Enclosed Fixtures Unless Otherwise Noted)

R“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J, (USA: 21CFR 1040.30 Canada:SOR/DORS/80-381)

If the outer bulb is broken or punctured, turn off at once and replace the lamp to avoid possible injury from hazardous short wave ultraviolet radiation. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb may cause glass to fly if the envelope is struck.

WARNING: The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen,

THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.

Certain lamps that will retain all the glass particles should inner arc-tube rupture occur are commercially available from Philips Lighting Company.

RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE.

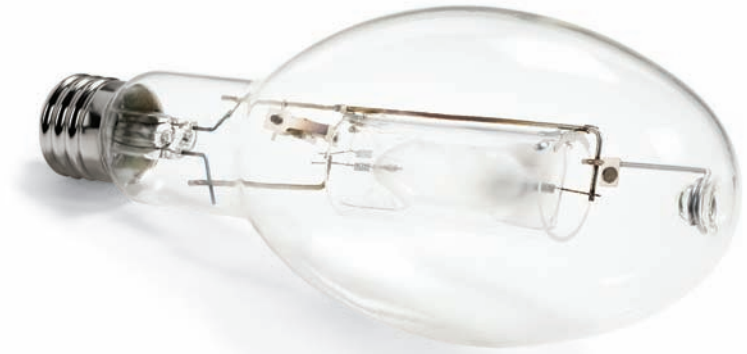
Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.

CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED:

LAMP OPERATING INSTRUCTIONS:

- Turn off lamps at least once a week for at least 15 minutes in systems which are operating on a continuous basis (24 hours/day-7 days/week). **FAILURE TO TURN OFF LAMPS FOR THE MINIMUM RECOMMENDED TIME MAY INCREASE THE POSSIBILITY OF AN INNER ARC-TUBE RUPTURE.**
- RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE.** Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.
- Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
- Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer:
 - Operate lamp only within specified limits of operation.
 - For total supply load refer to ballast manufacturers electrical data.
- Periodically inspect the outer envelope. Replace any lamps that show scratches, cracks or damage.
- If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
- Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
- Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
- Lamps may require 10 to 20 minutes to re-light if there is a power interruption.
- Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
 - Do not use this lamp:
 - In a fixture that contains a Pulse Start metal halide ballast.
 - In a fixture that is specifically designed for use with Pulse Start metal halide lamps. Operation of these lamps on Pulse Start Metal Halide systems may increase the chance of an outer bulb rupture and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

Philips TuffGuard™ High Intensity Discharge Coated Lamps—Protected Metal Halide “O” Rated Lamps



Ordering, Electrical and Technical Data

Product Number	Description	Nom. Watts	Volts	Pkg. Qty.	Bulb	Base	Rated Avg. Life (Hrs) ¹	Approx. Initial Lumens ²	Availability
20214-3	MP175/BU 12PK TG	175	132	12	ED-28	Mogul	10,000	15,000	Stocked
20215-0	MP250/BU 12PK TG	250	133	12	ED-28	Mogul	10,000	22,000	Made to Order
21148-2	MP360/BU/EW 6PK TG	360	120	6	ED-37	Mogul	20,000	34,200	Stocked
20216-8	MP400/BU 6PK TG	400	135	6	ED-37	Mogul	20,000	38,000	Stocked

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.

2) Protective coating may reduce actual lumens by up to 5%.

Above specifications are subject to change without notice.

WARNINGS:

- Coating can withstand bulb wall temperatures up to 500°F, subject to the following conditions:
 - Lamp must be installed and operated in ambient temperature below 150°F.
 - Lamp is not used in fixture that does not allow heat dissipation.
- UV radiation emitted from metal halide lamps may deteriorate the coating over time.
- The coating is not designed to contain an arc-tube rupture
- Under extreme conditions glass fragments may escape the coating
- Lamps must be burned base up only
- Only protective shrouded lamps are resistant to metal halide non-passive failure.

Made to order requires 3 week lead time
(No product returns on made to order lamps)

RECOMMENDED WARNINGS, CAUTIONS, AND OPERATING INSTRUCTIONS For Protected Metal Halide Lamps (Base Up Operation ± 15° Unless Noted; Open or Enclosed Fixtures)

R“WARNING: These lamps can cause serious skin burn and eye inflammation from short wave ultraviolet radiation if outer envelope of the lamp is broken or punctured. Do not use where people will remain for more than a few minutes unless adequate shielding or other safety precautions are used. Certain lamps that will automatically extinguish when the outer envelope is broken or punctured are commercially available.” This lamp complies with FDA radiation performance standard 21 CFR subchapter J, (USA: 21CFR 1040.30 Canada: SOR/DORS/80-381)

If the outer bulb is broken or punctured, turn off at once and replace the lamp to avoid possible injury from hazardous short wave ultraviolet radiation. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb may cause glass to fly if the envelope is struck.

WARNING: The arc-tube of metal halide lamps are designed to operate under high pressure and at temperatures up to 1000° C and can unexpectedly rupture due to internal or external factors such as a ballast failure or misapplication. If the arc-tube ruptures for any reason, the outer bulb may break and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen,

THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.

These lamps are designed to retain all the glass particles should an arc tube rupture occur. The following operating instructions are recommended to minimize these occurrences. RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE. Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.

CAUTION: TO REDUCE THE RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE RESULTING FROM AN ARC-TUBE RUPTURE THE FOLLOWING LAMP OPERATING INSTRUCTIONS MUST BE FOLLOWED:

LAMP OPERATING INSTRUCTIONS:

- RELAMP FIXTURES AT OR BEFORE THE END OF RATED LIFE.** Allowing lamps to operate until they fail is not advised and may increase the possibility of inner arc tube rupture.
- Before lamp installation/replacement, shut power off and allow lamp and fixture to cool to avoid electrical shock and potential burn hazards.
- Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer:
 - Operate lamp only within specified limits of operation.
 - For total supply load refer to ballast manufacturers electrical data.
- Periodically inspect the outer envelope. Replace any lamps that show scratches, cracks or damage.
- If a lamp bulb support is used, be sure to insulate the support electrically to avoid possible decomposition of the bulb glass.
- Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.
- Time should be allowed for lamps to stabilize in color when turned on for the first time. This may require several hours of operation, with more than one start. Lamp color is also subject to change under conditions of excess vibration or shock and color appearance may vary between individual lamps.
- Lamps may require 10 to 20 minutes to re-light if there is a power interruption.
- Take care in handling and disposing of lamps. If an arc tube is broken, avoid skin contact with any of the contents or fragments.
- Do not use this lamp:
 - In a fixture that contains a Pulse Start metal halide ballast.
 - In a fixture that is specifically designed for use with Pulse Start metal halide lamps. Operation of these lamps on Pulse Start Metal Halide systems may increase the chance of an outer bulb rupture and pieces of extremely hot glass might be discharged into the surrounding environment. If such a rupture were to happen, **THERE IS A RISK OF PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

Philips TuffGuard™ High Intensity Discharge Coated Lamps—HPS Lamps



Ordering, Electrical and Technical Data

Product Number	Description	Nom. Watts	Volts	Pkg. Qty.	Bulb	Base	Rated Avg. Life (Hrs) ¹	Approx. Initial Lumens ²	Availability
20218-4	C70S62 I2PK TG	70	52	12	ED-23½	Mogul	24,000	6500	Made to Order
20219-2	C100S54 I2PK TG	100	55	12	ED-23½	Mogul	24,000	9400	Made to Order
20220-0	C150S55 I2PK TG	150	55	12	ED-23½	Mogul	24,000	15,800	Made to Order
20222-6	C250S50 I2PK TG	250	100	12	ED-18	Mogul	24,000	27,000	Stocked
20458-6	C50S68/M I2PK TG	50	52	12	BF-55	Medium	24,000	4000	Made to Order
20460-2	C100S54/M I2PK TG	100	55	12	BF-55	Medium	24,000	9500	Made to Order

1) Average life under engineering data with lamps turned off and restarted once every 12 operating hours.
 2) Protective coating may reduce actual lumens by up to 5%.

Above specifications are subject to change without notice.

WARNINGS:

- Coating can withstand bulb wall temperatures up to 500°F, subject to the following conditions:
 - 1) Lamp must be installed and operated in ambient temperature below 150°F.
 - 2) Lamp is not used in fixture that does not allow heat dissipation.

Made to order requires 3 week lead time
 (No product returns on made to order lamps)

RECOMMENDED WARNINGS, CAUTIONS, AND OPERATING INSTRUCTIONS For High Pressure Sodium Lamps

R **WARNING:** These lamps must be operated in fixtures designed for use with High Pressure Sodium lamps. The fixture wattage rating must match the wattage indicated on the outer glass bulb. Do not scratch the outer bulb or subject it to pressure as this could cause the outer bulb to crack or shatter. A partial vacuum in the outer bulb may cause glass to fly if the glass is struck. Operating the lamp improperly may result in **PERSONAL INJURY, PROPERTY DAMAGE, BURNS AND FIRE.**

1. If the outer glass bulb is broken, shut off power immediately and remove the lamp after it has cooled.
 - A. Operate lamp only within specified limits of operation.
 - B. For total supply load refer to ballast manufacturers electrical data.
2. Use only auxiliary equipment meeting Philips and/or ANSI standards. Use within voltage limits recommended by ballast manufacturer.
3. Protect lamp base, socket and wiring against moisture, corrosive atmospheres and excessive heat.

4. Replace the lamp if the outer glass bulb has been scratched, cracked or damaged in any way.
5. If a lamp bulb support is used, be sure to insulate the support electrically so as to avoid possible decomposition of the bulb glass.
6. Do not use this lamp in a fixture which redirects a substantial portion of the energy toward the arc tube and its immediate vicinity as this may lead to very early lamp failure.
7. Take care in handling and disposing of lamps. If arc tube is broken, avoid skin contact with any of the contents or fragments.
8. The arc tube of this lamp contains sodium and mercury. Dispose of in accordance with federal, state and local requirements.



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