

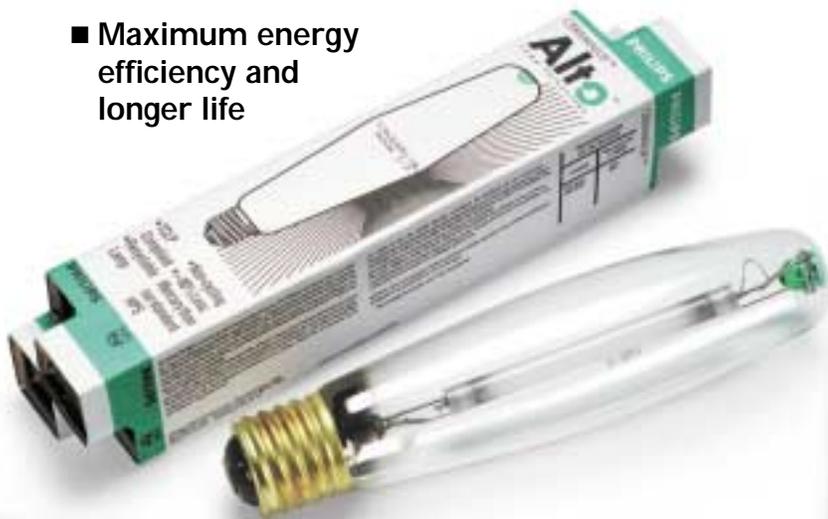
# ALTO® High Pressure Sodium Lamps (HPS)

Featuring Prompter™ End-of-Life Indicator.  
The Only TCLP\*-compliant High Pressure Sodium Lamp which clearly indicates need for replacement



Ideal for ...

- Any application where remote spot replacement creates soaring maintenance costs
- Maximum energy efficiency and longer life



*"Green" Dimple Identifier—Environmentally Responsible*

## ■ Prompter™ End-of-Life Indicator

Clearly indicates need for lamp replacement by changing to bluish white while providing approx. 30% of initial light output for safety.

Protects against ignitor and ballast failure caused by lamp outages in energized luminaires.

## ■ Passes EPA's TCLP\*-Test for Non-Hazardous Waste

Reduced cost of hazardous waste compliance

## ■ Non-Cycling End-of-Life

Eliminates costly maintenance "false" reports

## ■ More Resistant to Outages Caused by Vibration and Line Voltage Fluctuations

Reduced cost of maintenance

## ■ Same Efficiency and Life as Standard High Pressure Sodium Lamps

\*TCLP = Toxic Characteristic Leachate Procedure

Philips  
Lighting  
Company



# PHILIPS

*Let's make things better.*

## ALTO® High Pressure Sodium<sup>(1)</sup> Lamps Electrical, Technical and Ordering Data (Subject to change without notice)

Operating Position \_\_\_\_\_ Universal  
 Bulb Temp. (Maximum) \_\_\_\_\_ 400°C  
 Base Temp. (Maximum) \_\_\_\_\_ 210°C  
 Lamp Current Crest Factor (Maximum) \_\_\_\_\_ 1.8  
 Warm-up Time to 80% Full Light Output \_\_\_\_\_ 3-4 Minutes  
 Restart Time for Hot Lamps \_\_\_\_\_ 1-2 Minutes

Starter Pulse Voltage — Peak \_\_\_\_\_ 2500 Min..(4)(5)  
 Pulse Width @ 90% Peak \_\_\_\_\_ 1 Micro-Second Minimum  
 Pulse Repetition Rate \_\_\_\_\_ Lag Ballast \_\_\_\_\_ 1 Per Cycle  
 \_\_\_\_\_ Lead Ballast \_\_\_\_\_ 1 Per ½ Cycle  
 Standard Package Quantity \_\_\_\_\_ 12  
 (Except E-25 lamp which is 6)

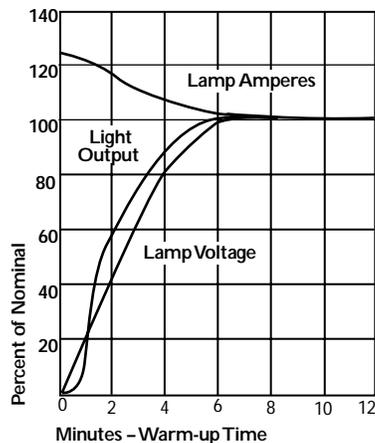
Product Number	Ordering Code	ANSI Designation	Nominal Watts	Lamp Volts	Bulb	Base	Bulb Finish	Ballast Type	Open Circuit Volts RMS (Min..)	Light Center Length (Inches)	Max. Overall Length (Inches)	Rated Avg. Life (Hours) <sup>(2)</sup>	Approx. Initial Lumens <sup>(3)</sup>	Approx. Mean Lumens <sup>(3)</sup>
29318-3	C100S54/AL	S54NV-NOGC	100	55	ED-23 1/2	Mog.	Clear	S54	110	5	7 3/4	24000+	9500	8550
29319-1	C150S55/AL	S55NV-NOGD	150	55	ED-23 1/2	Mog.	Clear	S55	110	5	7 3/4	24000+	16000	14400
27664-2	C250S50/AL	S50E5-NOGD	250	100	ED-18	Mog.	Clear	S50	198	5 3/4	9 3/4	24000+	28500	25600
27667-5	C400S51/AL	S51E5-NOGD	400	100	ED-18	Mog.	Clear	S51	198	5 3/4	9 3/4	24000+	50000	45000
36018-0	C1000S52/AL	S52XB-NOGD	1000	250	E-25	Mog.	Clear	S52	456	8 3/4	15 1/6	24000+	140000	126000

Footnotes:

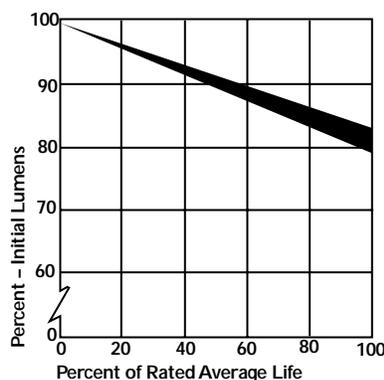
- The "high" pressure is less than atmospheric and is entirely within the arc tube. The outer bulb is evacuated. The silver spot near the lamp base is "getter" used in evacuating the bulb to assure long life. TCLP-Compliant.
- Based on survival of at least 50% of the lamps operated under specified test conditions. Non-cycling end-of-life (changes to mercury glow state).
- Based on photometry of 100-hour lamps in vertical position at rated watts on a linear reactor ballast under specified test conditions; however, ratings apply to all operating positions. Mean lumens are approximately at 50% of rated lamp life.
- Follow ballast manufacturer's recommendations regarding proximity of ballast to socket. Use lamp in fixtures which do not redirect a substantial portion of the energy toward the arc tube or toward the lamp "getter".
- The lamp ballast must provide a minimum starting voltage pulse of 2500V (3500V for the 1000-watt lamp), therefore: fixtures designed for these lamps must incorporate socket designs and wiring capable of withstanding such voltages without arc-over (up to 5000V for 1000 watt lamp).

\* Available June 1999

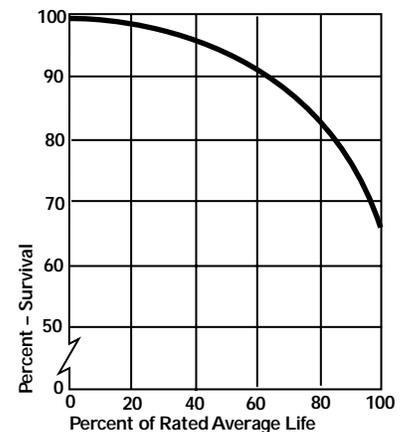
### Warm-up Characteristics of ALTO® High Pressure Sodium (HPS)



### Approximate Lumen Maintenance



### Approximate Survival Curve of ALTO® HPS Lamps



Same Performance as Standard High Pressure Sodium Lamps