

**LONG LIFE LIGHTS** The Long Life Lights concept comprises light sources with extra long service life. The concept is the result of innovative product development and rigorous quality control. For our customers, the unique service life means that light sources do not need to be changed so often, which reduces their maintenance costs. The products in the concept are therefore an investment for our customers and for the environment. Products such as fluorescent tubes and light bulbs are developed, manufactured and sold within the framework of the Long Life Lights concept.

# Aura *THERMO*

LONG LIFE

## lighting in low temperature application areas

Aura *THERMO* fluorescent lamps are designed specifically for environments where the ambient temperature is low. The unique construction contains a Long Life fluorescent lamp cased in an outer glass tube.

The outer glass tube provides a thermal insulation which results in excellent high light output at low temperatures. At -20°C *THERMO* lamps produce up to five times more light than standard lamps under the same ambient temperature conditions.

The Long Life fluorescent lamps are based on two special patents. One for our unique cathode shield construction and the other for the inside protection layer.

All Aura *THERMO* Long Life lamps have high quality tri-phosphor colours with excellent colour rendering of Ra 85.

Available versions are:

- T8 (Ø 26 mm) with an outer glass tube of Ø 38 mm
- T8 (Ø 26 mm) with an outer glass tube of Ø 32 mm
- T5 (Ø 16 mm) with an outer glass tube of Ø 26 mm

The starting characteristics of *THERMO* lamps are excellent at low temperatures.



**Sign lighting**

**Tunnel lighting**

**Street lighting**

**Car parks**

**Refrigerated counters**

**Cool cabinets**

**Frozen storages**

## Applications

*THERMO* Long Life is developed for use in low temperature environments where lamp replacement is difficult and time consuming and the overall operational costs are high.

## Lifetime

The service life of *THERMO* Long Life fluorescent lamps is based on the integrated Long Life lamp. Service life is reached when the amount of light in an installation falls to 80% of the initial 100-hour value. Service life of the lamp failure rate and the lumen depreciation is calculated based on a 3-hour operation switching cycle according to IEC/EN 60081.

The service life for magnetic ballast with starter and electronic ballast operation is listed in the programme data overview on the final page.

In installations where lamp replacement is difficult and cost intensive, the long running time of *Aura* Long Life lamps gives more cost effective lighting maintenance and improved long term planning for group replacement. Group replacement of fluorescent lamps provides an optimal control of the operational costs and a uniform level of light.

For economical and environmental reasons *Aura* recommends group replacement of Long Life fluorescent lamps.

## Long Life guarantee

The *Aura* Long Life fluorescent lamps are developed and manufactured in accordance with the IEC/EN60081 standard. Continuous strict quality control processes secure fluorescent lamps of top quality.

*Aura* guarantees the published service life of the Long Life fluorescent lamps for installations that comply with the relevant standards.



*THERMO* T5 LL HE gives light to car parks at Helsinki airport.



Long life illuminates Sweden's largest road tunnel construction, Södra Länken, even in cold temperatures.

LIFETIME		SWITCHING CYCLE	MAGNETIC BALLAST + STARTER	ELECTRONIC BALLAST (WARM START)
	<b>ULTIMATE</b>	<b>Thermo</b>	<b>3 h (Service Life)</b> 80% light available	<b>48.000 h</b>
<b>Thermo</b>		<b>12 h</b> 10% mortality rate	<b>60.000 h</b>	<b>80.000 h</b>
<b>UNIVERSAL</b>	<b>Thermo</b>	<b>3 h (Service Life)</b> 80% light available	<b>36.000 h</b>	<b>50.000 h</b>
	<b>Thermo</b>	<b>12 h</b> 10% mortality rate	<b>43.000 h</b>	<b>60.000 h</b>
<b>SUPREME</b>	<b>Thermo</b>	<b>3 h (Service Life)</b> 80% light available	Operation only possible with electronic ballast	<b>48.000 h</b>
	<b>Thermo</b>	<b>12 h</b> 10% mortality rate	Operation only possible with electronic ballast	<b>58.000 h</b>

Service Life for *ULTIMATE* 30W is 36.000 h for magnetic ballast with starter and 46.000 h for electronic ballast

Service Life for *UNIVERSAL* 30W is 24.000 h for magnetic ballast with starter and 32.000 h for electronic ballast

## Product range T8 (26 mm)

Our *THERMO* lamps with a basic 26 mm Ø fluorescent lamp in the outer tube are available with *ULTIMATE* and *UNIVERSAL*. Operation of these lamps is possible with magnetic ballast with starter or electronic ballast. They are available in two different sizes.

### Outer diameter 38 mm

Most popular is the 38 mm outer glass tube which is the former standard diameter of fluorescent lamps. These lamps with the so-called T12 diameter are very well utilised in luminaires developed for low temperature areas. *THERMO* lamps with 38 mm outer tube have the best light efficacy at low temperatures.

### Outer diameter 32 mm

An alternative for applications where the 38 mm does not fit in the luminaire is the *THERMO* lamp with 32 mm. This version is developed for luminaires for 26 mm lamps. These *THERMO* lamps produce up to three times more light compared to standard 26 mm lamps.

## Product range T5 (16 mm)

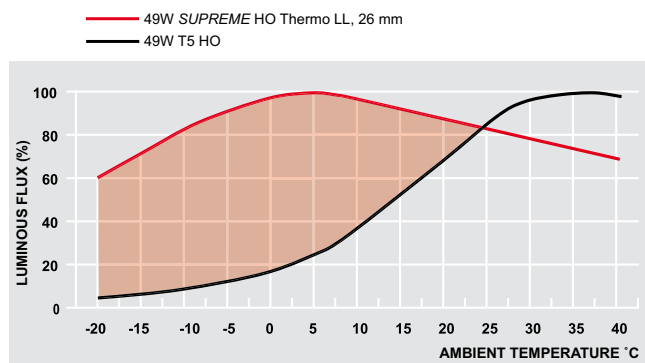
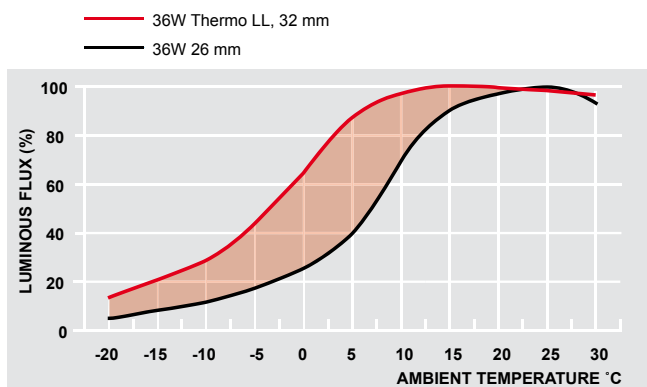
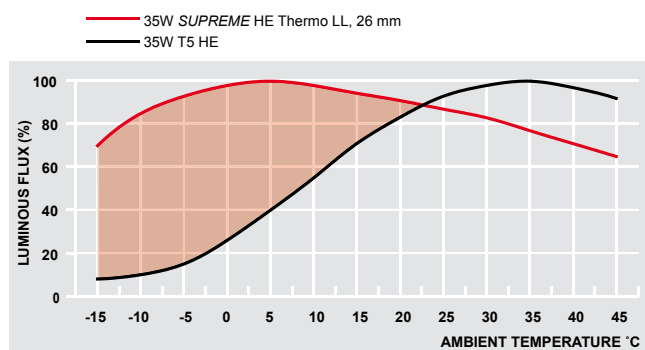
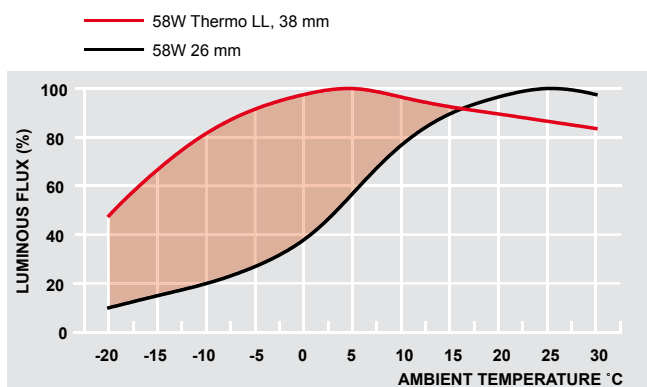
New creative developments and constructions for low temperature and outdoor areas are now possible with *THERMO* lamps based on the latest lamp technology of T5 Long Life lamps.

With a special design inside the 16 mm *T5 LL* lamp integrated in the 26 mm outer glass tube it is possible to reach the same extremely high level of light as the *THERMO* lamp with 38 mm Ø. Standard T5 lamps are based on a different concept for indoor lighting application in small sized closed luminaires where the ambient temperature is high.

The shape of the end caps is G13 to fix the lamp and outer tube in best condition but the connection pins are G5.

The lamps fit well in all luminaires designed for standard *T5 HE* and *HO* for use in functional areas (with the exception of luminaires where the dimension is extremely minimised). In places like outdoor signs or cold stores *T5 LL THERMO* opens the field for new developments and offers the opportunity for energy saving operations.

Operation is only possible with electronic ballast designed for *T5 HE* or *HO* lamps.



TYPE	COLOUR	COLOUR TEMP (K)	LUMINOUS* FLUX (lm/h)	LUMINOUS EFFICACY (lm/W)	OUTER TUBE Ø (mm)	LENGTH WITHOUT PINS (mm)	PACKING UNIT (pcs.)	ART. NO.
<b>ULTIMATE Thermo, outer tube 38 mm diameter (Cap: G13)</b>								
18 W/830	Warm white	3000	1250	69	38	590	25	432313
18 W/835	Middle white	3500	1250	69	38	590	25	432318
18 W/840	White	4000	1250	69	38	590	25	432314
18 W/865	Daylight	6500	1200	66	38	590	25	432316
30 W/830	Warm white	3000	2300	77	38	895	25	432323
30 W/840	White	4000	2300	77	38	895	25	432324
30 W/865	Daylight	6500	2250	75	38	895	25	432326
36 W -1m/830	Warm white	3000	3000	83	38	970	25	432343
36 W -1m/840	White	4000	3000	83	38	970	25	432344
36 W -1m/865	Daylight	6500	2950	82	38	970	25	432346
36 W/830	Warm white	3000	3200	89	38	1200	25	432333
36 W/835	Middle white	3500	3200	89	38	1200	25	432338
36 W/840	White	4000	3200	89	38	1200	25	432334
36 W/865	Daylight	6500	3150	87	38	1200	25	432336
58 W/830	Warm white	3000	5000	86	38	1500	25	432353
58 W/835	Middle white	3500	5000	86	38	1500	25	432358
58 W/840	White	4000	5000	86	38	1500	25	432354
58 W/865	Daylight	6500	4800	82	38	1500	25	432356
<b>UNIVERSAL Thermo, outer tube 38 mm diameter (Cap: G13)</b>								
18 W/830	Warm white	3000	1250	69	38	590	25	437313
18 W/840	White	4000	1250	69	38	590	25	437314
18 W/865	Daylight	6500	1200	66	38	590	25	437316
30 W/840	White	4000	2300	77	38	895	25	437324
36 W -1m/830	Warm white	3000	3000	83	38	970	25	437343
36 W -1m/840	White	4000	3000	83	38	970	25	437344
36 W/830	Warm white	3000	3200	89	38	1200	25	437333
36 W/840	White	4000	3200	89	38	1200	25	437334
36 W/865	Daylight	6500	3150	87	38	1200	25	437336
58 W/830	Warm white	3000	5000	86	38	1500	25	437353
58 W/840	White	4000	5000	86	38	1500	25	437354
58 W/865	Daylight	6500	4800	82	38	1500	25	437356
<b>ULTIMATE Thermo, outer tube 32 mm diameter (Cap: G13)</b>								
18 W/827	Interior	2700	1250	69	32	590	25	432412
18 W/830	Warm white	3000	1250	69	32	590	25	432413
18 W/840	White	4000	1250	69	32	590	25	432414
36 W-1m/845	White plus	4500	2850	79	32	970	25	432445
36 W/827	Interior	2700	3200	89	32	1200	25	432432
36 W/840	White	4000	3200	89	32	1200	25	432434
58 W/840	White	4000	5000	86	32	1500	25	432454
<b>SUPREME HE Thermo, outer tube 26 mm diameter (Cap: G13/G5)</b>								
14 W/830	Warm white	3000	1250	89	26	549	25	454113
14 W/840	White	4000	1250	89	26	549	25	454114
14 W/865	Daylight	6500	1200	86	26	549	25	454116
21 W/830	Warm white	3000	1950	93	26	849	25	454123
21 W/840	White	4000	1950	93	26	849	25	454124
21 W/865	Daylight	6500	1850	88	26	849	25	454126
28 W/830	Warm white	3000	2750	98	26	1149	25	454133
28 W/840	White	4000	2750	98	26	1149	25	454134
28 W/865	Daylight	6500	2650	95	26	1149	25	454136
35 W/830	Warm white	3000	3400	97	26	1449	25	454153
35 W/840	White	4000	3400	97	26	1449	25	454154
35 W/865	Daylight	6500	3250	93	26	1449	25	454156
<b>SUPREME HO Thermo, outer tube 26 mm diameter (Cap: G13/G5)</b>								
24 W/830	Warm white	3000	1700	71	26	549	25	457113
24 W/840	White	4000	1700	71	26	549	25	457114
39 W/830	Warm white	3000	3000	77	26	849	25	457123
39 W/840	White	4000	3000	77	26	849	25	457124
54 W/830	Warm white	3000	4300	80	26	1149	25	457133
54 W/840	White	4000	4300	80	26	1149	25	457134
49 W/830	Warm white	3000	4200	86	26	1449	25	457143
49 W/840	White	4000	4200	86	26	1449	25	457144
80 W/830	Warm white	3000	6000	75	26	1449	25	457153
80 W/840	White	4000	6000	75	26	1449	25	457154

\*) Luminous flux at the defined optimal ambient temperature level (measured at free burning lamps): T8 lamps with outer tube 38 mm diameter 18W+15°C, 36W+10°C, 58W+5°C; T8 lamps with outer tube 32 mm diameter 18W+20°C, 36W+15°C, 58W+10°C; T5 HE lamps with outer tube 26 mm diameter 14W+15°C, 21W+10°C, 28W+10°C, 35W+5°C; T5 HO lamps with outer tube 26 mm diameter 24W+15°C, 39W+10°C, 54W+10°C, 49W+5°C, 80W+5°C.

