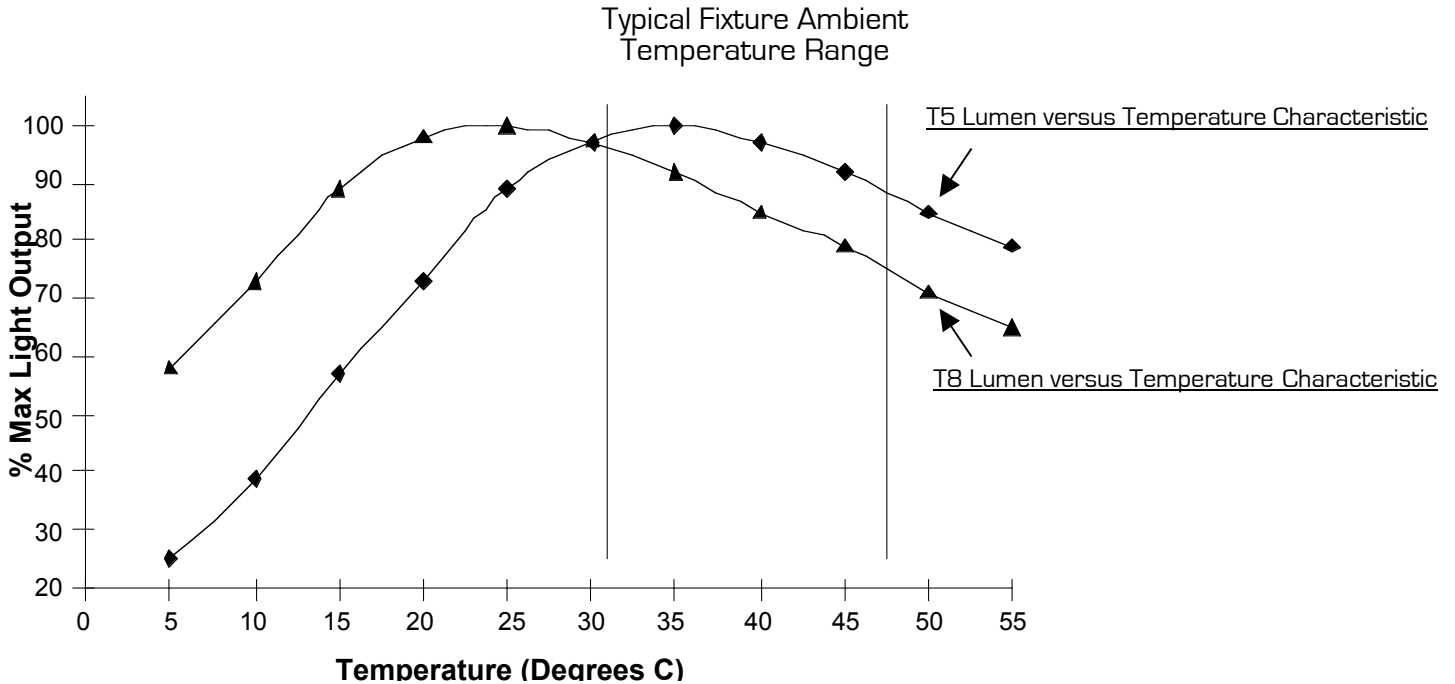




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This issue provides information regarding operating temperature ranges for T-5HO lamp.

Most fluorescent lamps (T12, T8) were designed to provide their maximum light output at an ambient temperature of 25°C (77°F). The T-5/HO lamp is designed to provide maximum light output at 35°C (95°F).



## T5 Lamp Performance is Optimized at 35 °C (Great for Small Fixtures and High Ambient Temperatures)

The chart above indicates that the T-5 system still produces 80% of the rated lumens at 55°C or 131°F.

In addition the T-5/HO ballast/lamp combination will still start and operate reliably between 0°F and -20°F depending on the manufacturer.

All of the T-5/HO fixtures provided by The Light Edge are enclosed systems, which provide the best lumen maintenance regardless of the ambient operating temperature. These fixtures have been used in nearly every conceivable application. from parking structures to warehouses, medical centers, microelectronics facilities, engineering offices, frozen food lockers, cove lighting, display cases, libraries and bookstores. Mounting methods have included T-Bar grid installations, chain hung, hard surface recessed and surface, direct and indirect, high bay, low bay, and both indoor and outdoor applications.

## COLD WEATHER PERFORMANCE

The Light Edge has performed testing of our 4-lamp MONSOON® luminaire in the freezer warehouse at the Alpenrose dairy in Portland, Oregon. The MON/454/35/MV units were installed and allowed to stabilize at (-)15°F for 4 hours, then energized. The units started and came up to maximum light output within 3 minutes.

After burning for several days (approx. 120 hours, allowing full lamp seasoning) a Fluke ET995 digital thermometer instrument coupled to a Fluke 80tk thermocouple was inserted into the lamp compartment and the following readings were taken:

- ▼ Ambient Temperature: -15°F (-26°C)
- ▼ Inside surface of lens: 15°F (-9°C)
- ▼ Lamp hot spot: 71°F (22°C)
- ▼ Ambient lamp compartment: 67°F (20°C)

According to data published by Philips Lighting and GE lighting (relationship of luminous flux to ambient temperature), the T5HO lamp operating in an ambient environment, in still air, of -20°C doesn't register on the chart. However, the lamp compartment temperature in an enclosed luminaire is higher than the ambient temperature. With a corrected ambient temperature of 67°F, the efficiency of the output is raised to 76%.

All light sources will suffer some loss at such an extremely low temperature. The T5HO shows itself suitable as long as it is in an enclosed luminaire within that environment. The majority of the applications we anticipate are in an environment range above 32°F, which as the data projects should allow at least 83% efficiency.

The chart below shows relative relationship between ambient temperature and light output *for our enclosed luminaire*. It is a compilation of lamp manufacturer's data (also attached) and our studies.

