

Table 3.5 Summary of lamp characteristics cont...

Lamp name	Output range (lm)	Power range (W)	Efficacy (lm/W)	Control gear	Colour temp (K)	Colour rendering (Ra)	Run-up time	Dimming	Life (h) <sup>(1)</sup>	Comments
Low pressure sodium										
SOX SOX-E	1,800–32,000	26–200	70–180	Yes	N/A	N/A	10–20 min	No	15,000–20,000	Good lumen maintenance, but power consumption goes up through life
High pressure sodium										
Std SON	4,300–130,000	85–1040	53–142	Yes	1,900–2,100	19–25	3–7 min	Limited to 25%	10,000–20,000	
Delux SON	12,500–37,000	165–430	75–86	Yes	2,150	65	5 min	Limited to 25%	10,000–14,000	
White SON	1,800–5,000	45–115	40–44	Yes	2,500	83	2 min	No	6,000–9,000	
Induction										
	2,600–12,000	55–165	47–80	Yes	2,550–4,000	80	1 min	No	60,000+	
LEDs <sup>(8)</sup>										
	20–220	1–5	30–100	Yes	2,685–6500	40–85	Instant	Easy to 0%	15,000–60,000 <sup>(9)</sup>	The range of LEDs is increasing rapidly

1 Economic lamp life may be limited by lumen depreciation.

2 A lot of TH types are designed to run on low voltages and thus need a transformer or other device to supply the necessary voltage.

3 Some lamps with dichroic reflectors have part of the red end of the spectrum missing and thus do not have a colour rendering index of 100, information from lamp makers on this topic is hard to find.

4 T12 lamps are not generally used in new installations as T5 and T8 types are more efficient.

5 Lamps also available with exceedingly long lamp lives of e.g. 30,000 hours and 60,000 hours.

6 Most T5 lamps are optimised to give maximum light output at 35°C. The figures in this table are based upon their output at 25°C. As in most luminaires the lamp runs close to 35°C then the apparent light output ratio (LOR) of the luminaire appears to be higher than normal.

7 Most manufacturers are working on dimming control gear for this sort of lamp, but most products released onto the market so far have had major problems.

8 The LEDs can be integrated within the LED lamp, LED module or LED luminaire. The values represent the values of the LED alone of current technology Jan 09 and two points should be noted:  
– thermal, driver and optical losses (potentially 50%), will reduce these lumen output and efficiency values, when built into a luminaire.  
– the lumen output and efficiency development curves are much steeper than existing other lamp technologies.

9 For lamp life both electrical failures and lumen maintenance should be considered to measurement standards e.g. B10/L70 (10% electrical failures and 70% lumen depreciation at lamp life).