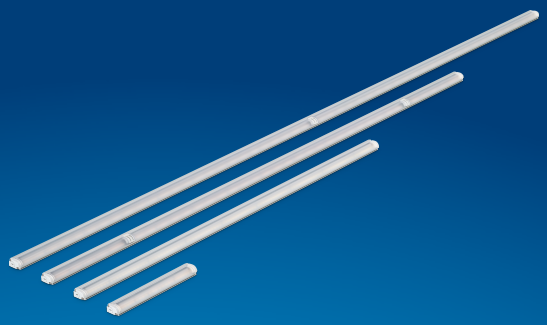
PHILIPS

InteGrade

LED

InteGrade engine vision G3



Datasheet

# InteGrade LED system

## Compact linear LED lighting for ultimate shopping experience

### Key features and benefits

- State-of-art Efficacy up to 110 lm/W
- Breakthrough optical design directing the light precisely to shine the merchandise
- Natural merchandise color with specially formulated CRI90 LEDs
- Food version featuring a single color line of light
- Miniaturized slim design for aesthetic integration
- Continuous line of light to eliminate undesirable hot spots, glare, reflections
- Long life-time: >50,000 hours
- Maximum design flexibility with extensive range of engine lengths, color temperatures and accessories
- True System proposition with Xitanium Constant Voltage LED power drivers
- Five year system warranty
- Dimmable
- Start-up time / Warm-up time: instant start-up with full illumination.

February 2019

direct

100%

instant

## Ordering data

| Commercial product name | EOC | 12NC | Box quantity |
|---|---|---|---|
| InteGrade engine Vi 140mm 930 G3 | 8718696 744376 00 | 9290 015 75806 | 24 |
| InteGrade engine Vi 140mm 940 G3 | 8718696 744277 00 | 9290 015 76206 | 24 |
| InteGrade engine Vi 140mm 956 G3 | 8718696 792124 00 | 9290 016 18306 | 24 |
| InteGrade engine Vi 140mm WWR G3 | 8718696 744291 00 | 9290 015 76606 | 24 |
| InteGrade engine Vi 575mm 930 G3 | 8718696 745731 00 | 9290 015 75906 | 24 |
| InteGrade engine Vi 575mm 940 G3 | 8718696 745755 00 | 9290 015 76306 | 24 |
| InteGrade engine Vi 575mm 956 G3 | 8718696 792148 00 | 9290 016 18406 | 24 |
| InteGrade engine Vi 575mm WWR G3 | 8718696 745779 00 | 9290 015 76706 | 24 |
| InteGrade engine Vi 855mm 930 G3 | 8718696 745991 00 | 9290 015 76006 | 24 |
| InteGrade engine Vi 855mm 940 G3 | 8718696 746011 00 | 9290 015 76406 | 24 |
| InteGrade engine Vi 855mm 956 G3 | 8718696 792162 00 | 9290 016 18506 | 24 |
| InteGrade engine Vi 855mm WWR G3 | 8718696 746035 00 | 9290 015 76806 | 24 |
| InteGrade engine Vi 855mm XR G3 | 8718699 655037 00 | 9290 014 94906 | 24 |
| InteGrade engine Vi 1150mm 930 G3 | 8718696 745557 00 | 9290 015 76106 | 24 |
| InteGrade engine Vi 1150mm 940 G3 | 8718696 745571 00 | 9290 015 76506 | 24 |
| InteGrade engine Vi 1150mm 956 G3 | 8718696 792216 00 | 9290 016 18606 | 24 |
| InteGrade engine Vi 1150mm WWR G3 | 8718696 745595 00 | 9290 015 76906 | 24 |
| InteGrade engine Vi 1150mm XR G3 | 8718699 655051 00 | 9290 014 95006 | 24 |

## Module temperatures

| Parameter | Nominal* | Life** | Max*** | Unit |
|---|---|---|---|---|
| $T_a$ (ambient temperature) | 5 | 30 | 30 | °C |

* Nominal value at which typical performance is specified

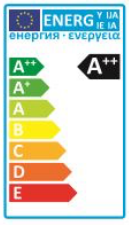
** Value at which life time is specified

*** Maximum value for safe operation, do not operate above this value

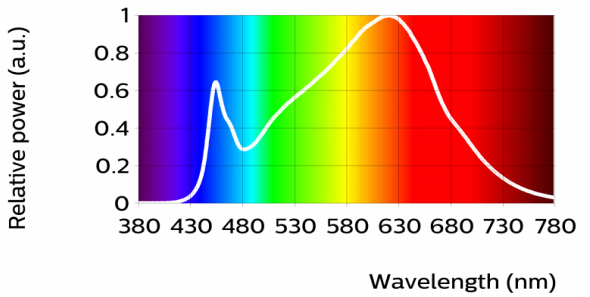
## Optical characteristics - table per color (CCT)

### InteGrade engine Vi 140mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 136 | 170 | 204 | lm |
| Correlated color temperature (CCT) | | 3000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.434, 0.403) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

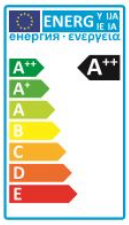



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

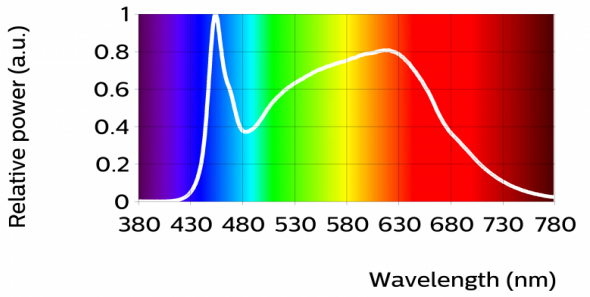



### InteGrade engine Vi 140mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 144 | 180 | 216 | lm |
| Correlated color temperature (CCT) | | 4000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.383, 0.382) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

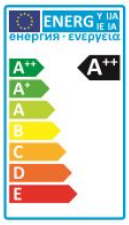



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

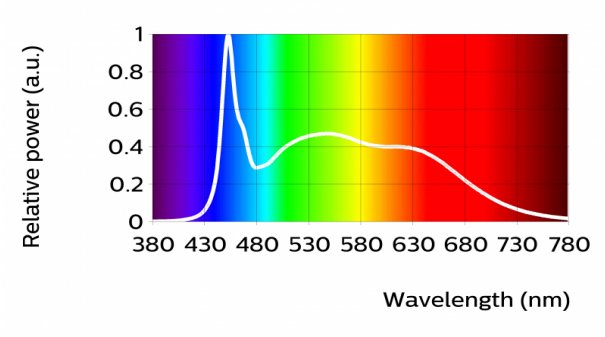


## InteGrade engine Vi 140mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 160 | 200 | 240 | lm |
| Correlated color temperature (CCT) | | 5600 | | K |
| Color coordinates (CIEx, CIEy) | | (0.334, 0.351) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | exempt | |

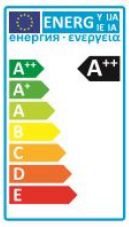



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

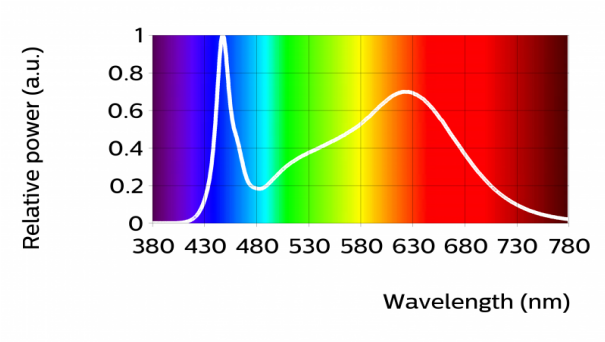



## InteGrade engine Vi 140mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 120 | 150 | 180 | lm |
| Color coordinates (CIEx, CIEy) | | (0.387, 0.332) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

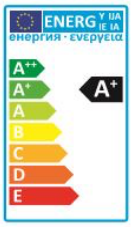



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

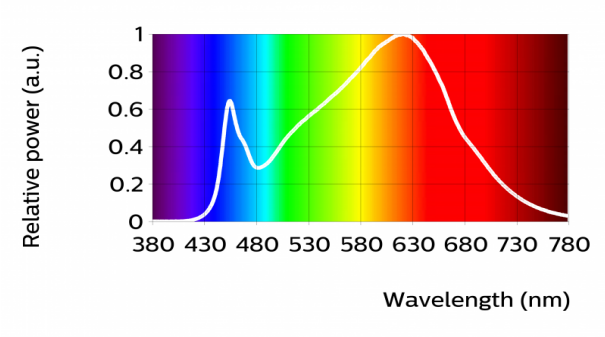


## InteGrade engine Vi 575mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 600 | 750 | 900 | lm |
| Correlated color temperature (CCT) | | 3000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.434, 0.403) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

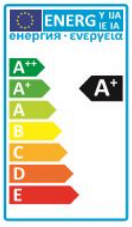



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

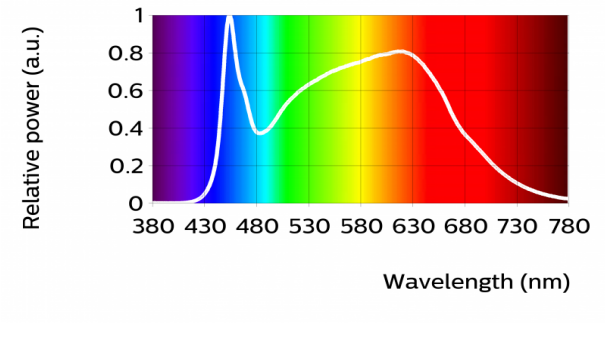



## InteGrade engine Vi 575mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 640 | 800 | 960 | lm |
| Correlated color temperature (CCT) | | 4000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.383, 0.382) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

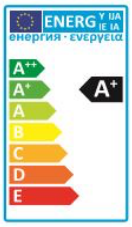



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

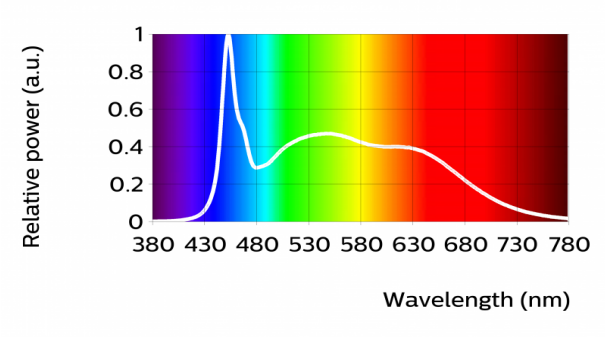


## InteGrade engine Vi 575mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 640 | 800 | 960 | lm |
| Correlated color temperature (CCT) | | 5600 | | K |
| Color coordinates (CIEx, CIEy) | | (0.334, 0.351) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | exempt | |

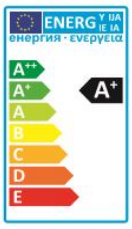



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

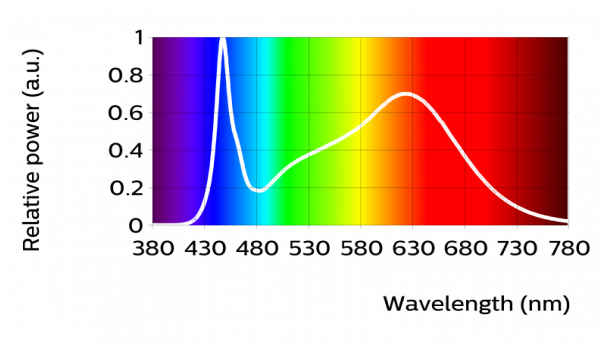



## InteGrade engine Vi 575mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 520 | 650 | 780 | lm |
| Color coordinates (CIEx, CIEy) | | (0.387, 0.332) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

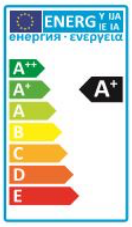



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

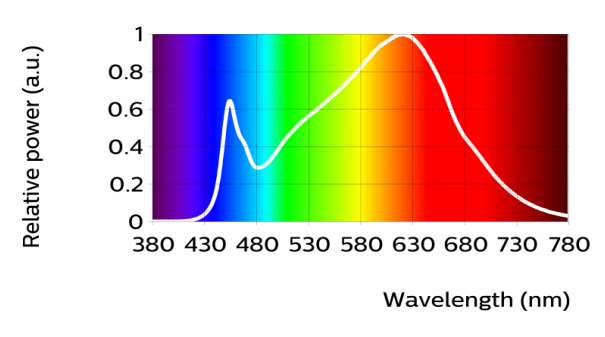


## InteGrade engine Vi 855mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 872 | 1090 | 1308 | lm |
| Correlated color temperature (CCT) | | 3000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.434, 0.403) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

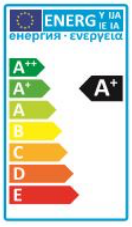



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

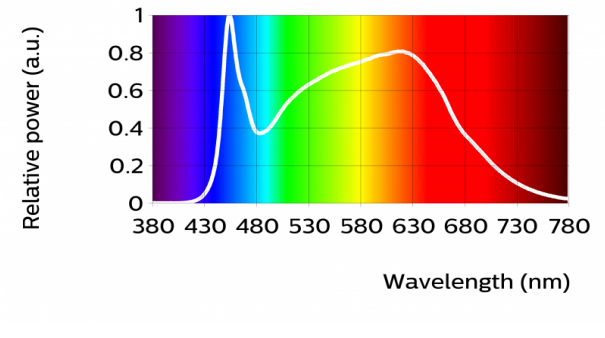



## InteGrade engine Vi 855mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 928 | 1160 | 1392 | lm |
| Correlated color temperature (CCT) | | 4000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.383, 0.382) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

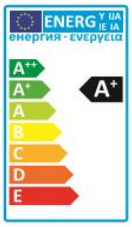



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

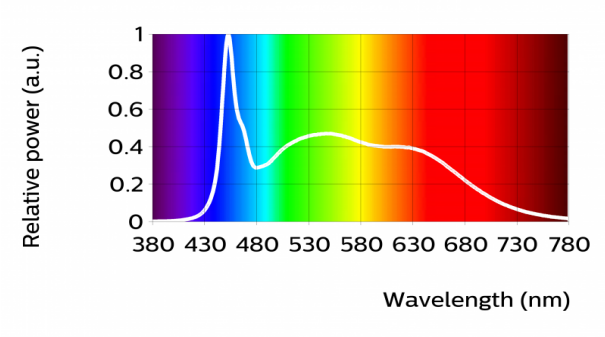


## InteGrade engine Vi 855mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 960 | 1200 | 1440 | lm |
| Correlated color temperature (CCT) | | 5600 | | K |
| Color coordinates (CIEx, CIEy) | | (0.334, 0.351) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | exempt | |

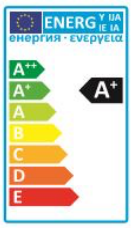



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

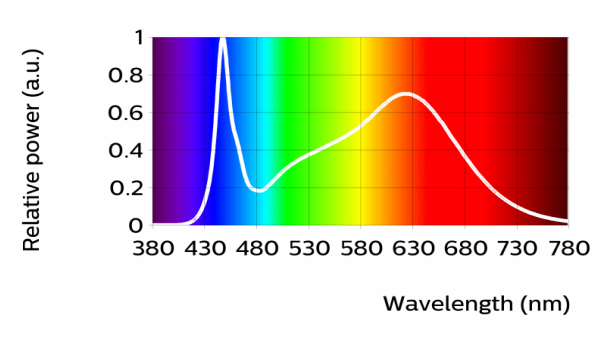



## InteGrade engine Vi 855mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 760 | 950 | 1140 | lm |
| Color coordinates (CIEx, CIEy) | | (0.387, 0.332) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

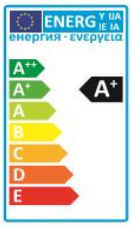



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

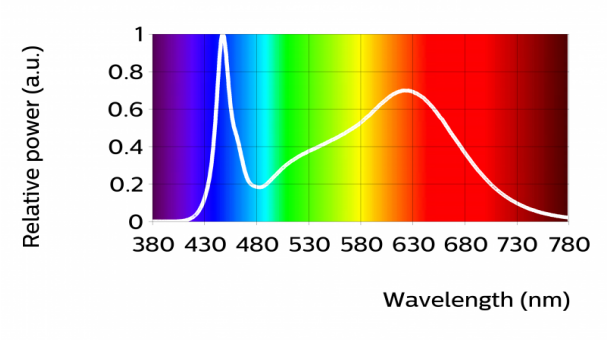


## InteGrade engine Vi 855mm XR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 632 | 790 | 948 | lm |
| Color coordinates (CIEx, CIEy) | | (0.461, 0.351) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 80 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | exempt | |

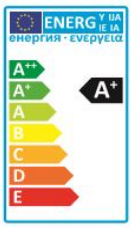



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

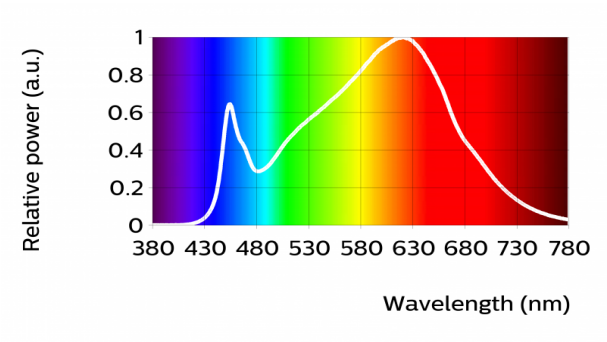



## InteGrade engine Vi 1150mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1200 | 1500 | 1800 | lm |
| Correlated color temperature (CCT) | | 3000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.434, 0.403) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

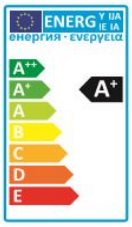



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

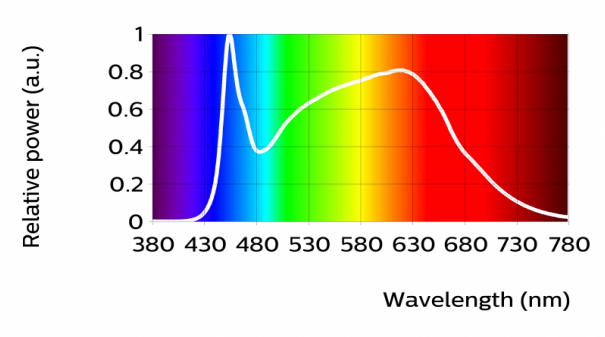


## InteGrade engine Vi 1150mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1280 | 1600 | 1920 | lm |
| Correlated color temperature (CCT) | | 4000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.383, 0.382) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

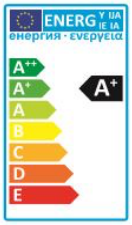



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

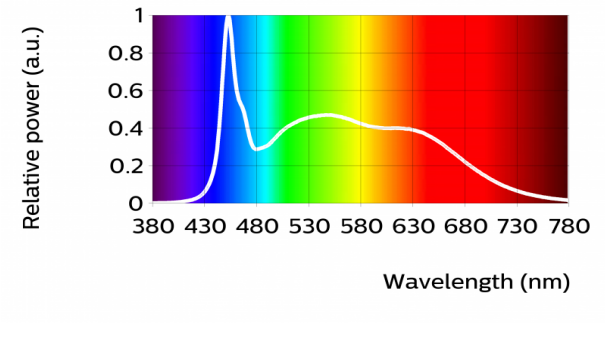



## InteGrade engine Vi 1150mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1280 | 1600 | 1920 | lm |
| Correlated color temperature (CCT) | | 5600 | | K |
| Color coordinates (CIEx, CIEy) | | (0.334, 0.351) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | exempt | |

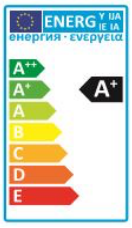



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

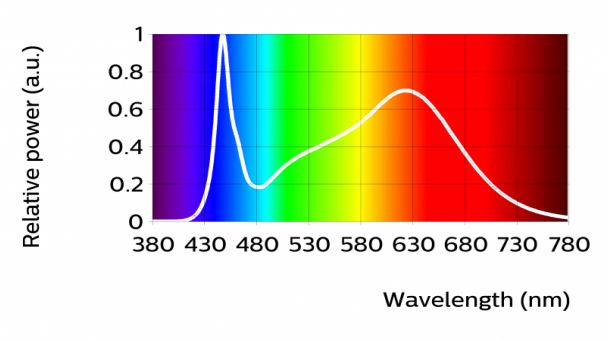


## InteGrade engine Vi 1150mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1040 | 1300 | 1560 | lm |
| Color coordinates (CIEx, CIEy) | | (0.387, 0.332) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 90 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | RG1 unlimited | |

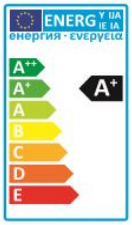



Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5

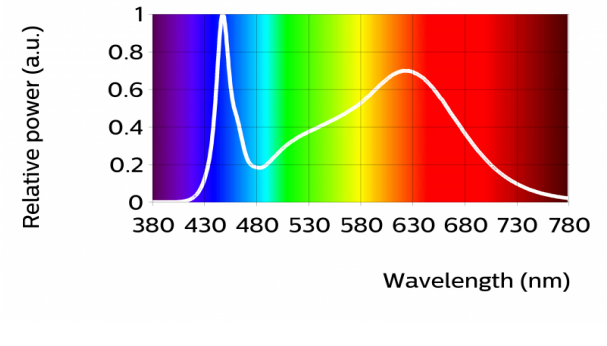



## InteGrade engine Vi 1150mm XR G3

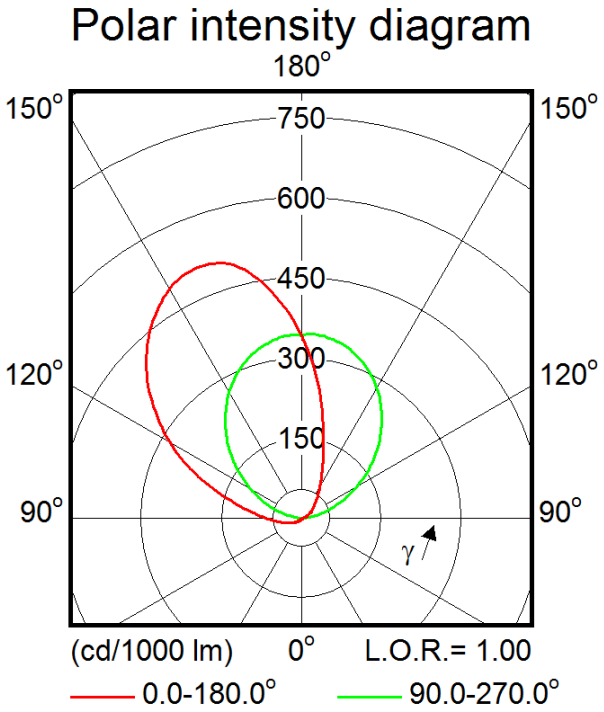
| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 848 | 1060 | 1272 | lm |
| Color coordinates (CIEx, CIEy) | | (0.461, 0.351) | | - |
| Color consistency | | | 5 | SDCM |
| CRI | 80 | | | |
| Radiation angle | | 70 | | deg |
| Photobiological safety | | | exempt | |




Measurement precision for flux +/- 5%, for efficacy +/- 6%., for x, y +/- 0.005, for CRI +/- 1.5



## Beam shape


Polar intensity diagram
180°
150°
150°
750
600
450
300
150
120°
120°
90°
90°
γ
(cd/1000 lm)
0°
L.O.R.= 1.00
0.0-180.0°
90.0-270.0°

## Electrical characteristics

### InteGrade engine Vi 140mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 1.7 | | W = kWh/1000h |
| Number of modules in series per chain | | | 24 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 140mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Power consumption | | 1.7 | | W = kWh/1000h |
| Number of modules in series per chain | | | 24 | |

### InteGrade engine Vi 140mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 1.9 | | W = kWh/1000h |
| Number of modules in series per chain | | | 24 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 140mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 1.6 | | W = kWh/1000h |
| Number of modules in series per chain | | | 24 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 575mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 7.3 | | W = kWh/1000h |
| Number of modules in series per chain | | | 6 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 575mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Power consumption | | 7.3 | | W = kWh/1000h |
| Number of modules in series per chain | | | 6 | |

### InteGrade engine Vi 575mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Power consumption | | 7.3 | | W = kWh/1000h |
| Number of modules in series per chain | | | 6 | |

### InteGrade engine Vi 575mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 6.7 | | W = kWh/1000h |
| Number of modules in series per chain | | | 6 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 855mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 10.7 | | W = kWh/1000h |
| Number of modules in series per chain | | | 4 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 855mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Power consumption | | 10.7 | | W = kWh/1000h |
| Number of modules in series per chain | | | 4 | |

### InteGrade engine Vi 855mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 11.1 | | W = kWh/1000h |
| Number of modules in series per chain | | | 4 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 855mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 9.8 | | W = kWh/1000h |
| Number of modules in series per chain | | | 4 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 855mm XR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 9.8 | | W = kWh/1000h |
| Number of modules in series per chain | | | 4 | |

### InteGrade engine Vi 1150mm 930 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 14.6 | | W = kWh/1000h |
| Number of modules in series per chain | | | 3 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 1150mm 940 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Power consumption | | 14.6 | | W = kWh/1000h |
| Number of modules in series per chain | | | 3 | |

### InteGrade engine Vi 1150mm 956 G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 14.9 | | W = kWh/1000h |
| Number of modules in series per chain | | | 3 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 1150mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 13.0 | | W = kWh/1000h |
| Number of modules in series per chain | | | 3 | |

Measurement precision for power +/- 3.3%

### InteGrade engine Vi 1150mm XR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | | 24.0 | | V |
| Power consumption | | 13.4 | | W = kWh/1000h |
| Number of modules in series per chain | | | 3 | |

## Lumen maintenance

| Operation point | Lumen maintenance | L70 | | | L80 | | |
|---|---|---|---|---|---|---|---|
| | x 1000 hours | B50 | B20 | B10 | B50 | B20 | B10 |
| | Ta -20°C | >75 | >75 | >75 | >75 | >75 | >75 |
| | Ta 5°C | >75 | >75 | >75 | 65 | 64 | 64 |
| | Ta 30°C | >75 | 75 | 74 | 47 | 46 | 46 |

## Lifetime

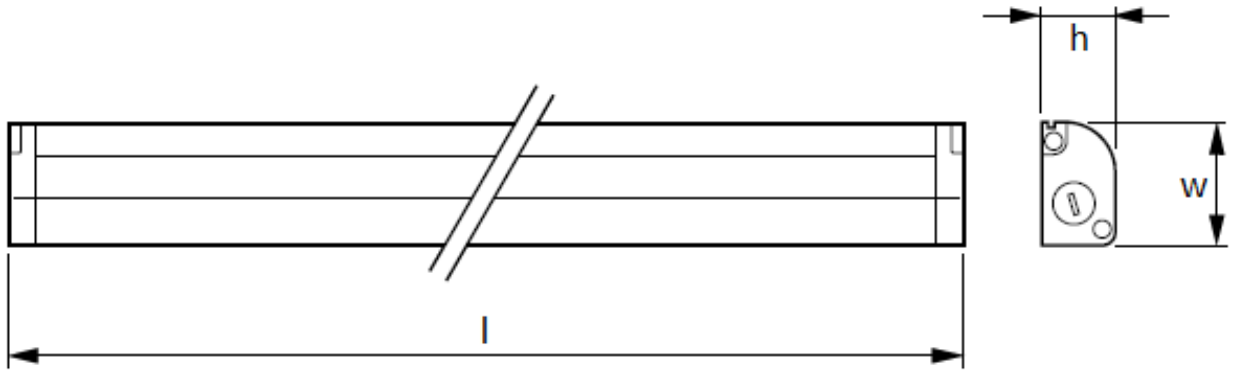
| Parameter | Value | Unit |
|---|---|---|
| M70F50 nominal | 100000 | hours |
| M70F50 life | 74000 | hours |

Switching cycles in accordance to EU 1194/2012: >15000.

## Mechanical characteristics

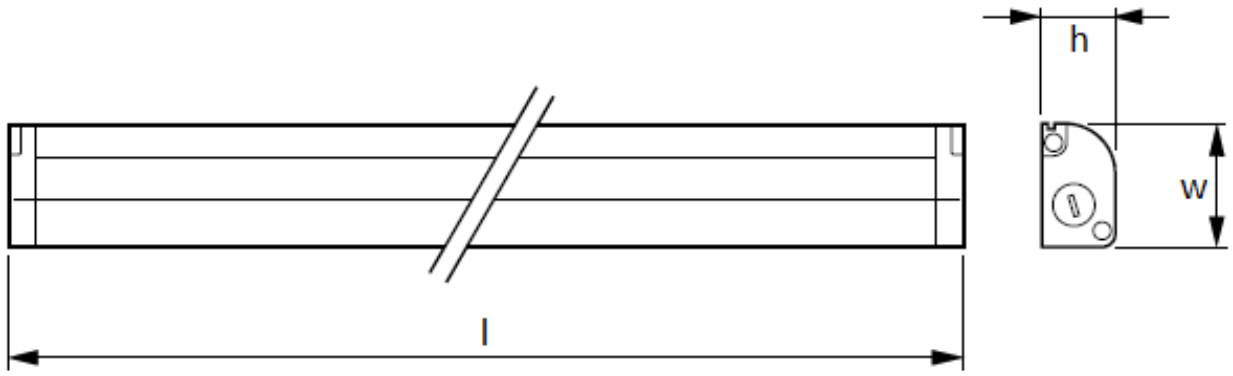
InteGrade engine Vi 140mm 930 G3
InteGrade engine Vi 140mm 940 G3
InteGrade engine Vi 140mm 956 G3
InteGrade engine Vi 140mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Length | 136 | 140 | 144 | mm |
| Width | 18.2 | 18.5 | 18.7 | mm |
| Height | 10.5 | 11 | 13.5 | mm |
| Product mass | | 30 | | gram |



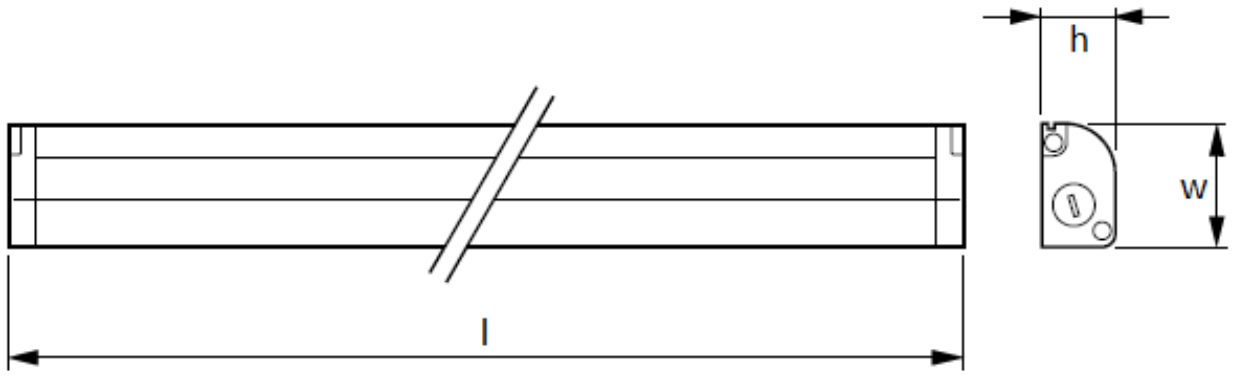

InteGrade engine Vi 575mm 930 G3
InteGrade engine Vi 575mm 940 G3
InteGrade engine Vi 575mm 956 G3
InteGrade engine Vi 575mm WWR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Length | 571 | 575 | 579 | mm |
| Width | 18.2 | 18.5 | 18.7 | mm |
| Height | 10.5 | 11 | 13.5 | mm |
| Product mass | | 140 | | gram |



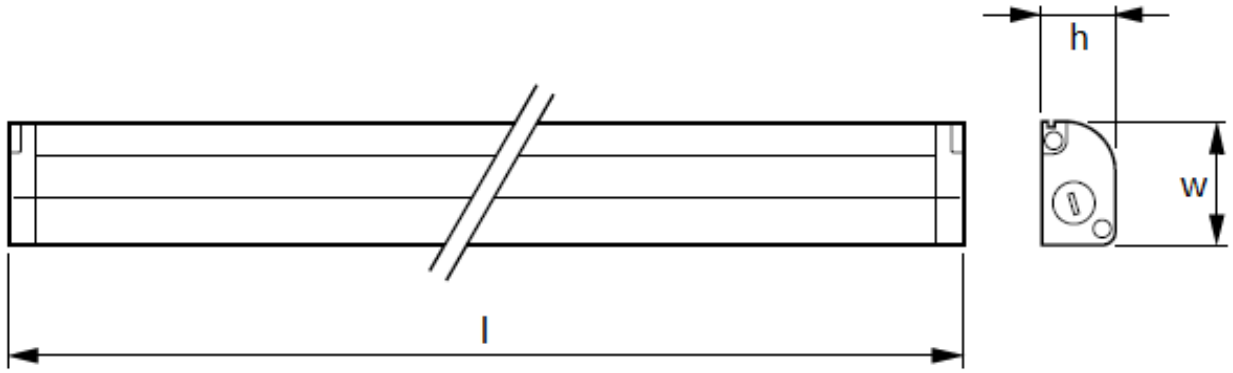
InteGrade engine Vi 855mm 930 G3
InteGrade engine Vi 855mm 940 G3
InteGrade engine Vi 855mm 956 G3
InteGrade engine Vi 855mm WWR G3
InteGrade engine Vi 855mm XR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Length | 851 | 855 | 859 | mm |
| Width | 18.2 | 18.5 | 18.7 | mm |
| Height | 10.5 | 11 | 13.5 | mm |
| Product mass | | 184 | | gram |




InteGrade engine Vi 1150mm 930 G3
InteGrade engine Vi 1150mm 940 G3
InteGrade engine Vi 1150mm 956 G3
InteGrade engine Vi 1150mm WWR G3
InteGrade engine Vi 1150mm XR G3

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Length | 1146 | 1150 | 1154 | mm |
| Width | 18.2 | 18.5 | 18.7 | mm |
| Height | 10.5 | 11 | 13.5 | mm |
| Product mass | | 247 | | gram |



## Absolute ratings

| Parameter | Min | Max | Unit |
|---|---|---|---|
| ESD (direct contact) | | 4 | kV |
| ESD (air) | | 8 | kV |
| Ambient temperature | -30 | 30 | °C |
| Storage temperature | -30 | 60 | °C |

## Application information

**Certificates and Standards**
IEC/EN 62031
IEC/EN 62471
Relevant clauses of IEC/EN 60335-1
Annex BB of IEC/EN 60335-2-89
Annex CC of IEC/EN 60335-2-24
CSA C22.2 No.9
UL 2108
NSF (allows usage in the vicinity of Food)
ENEC

**Environmental**
RoHS/REACH

| Application | |
|---|---|
| IP rating | No IP-rating, fit for use in coolers and freezers |
| Overheating protection | No protection |
| Luminaire class | IEC Class III if connected to a SELV driver |
| Dimming | Yes |

The InteGrade system is certified with the household standard compliant SELV Philips LED Power drivers.

## Notes

Special colors; Modules with WWR and XR color are special purpose modules for refrigerated cabinets, not for general lighting.

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