LEDSPOTS CC

EVOLVE 50 – 36 V GEN. 3

MODULAR LED SPOTS AND ENGINES FOR MULTIPLE OPTICS CONFIGURATIONS

One of the main characteristics of these LED spots and engines is their flexibility. The modularity of these LED engines allows you to combine different lenses and reflectors in order to get the result you expect.

Moreover, with its easy to fit technology you connect optics or reflectores in a blink of an eye – just click it in.

Typical applications for LEDSpots

Integration in luminaires

- Residential lighting
- Retail lighting
- Hospitality lighting
- Museum lighting

Evolve 50 – 36 V

- **MODULAR SYSTEM: ENGINE + OPTICS**
- **NARROW COLOUR TOLERANCES: 3 STEP MACADAM**
- **COLOUR RENDERING INDEX: CRI 92**
- **LUMINOUS FLUX: UP TO 1450 LM (CRI 92)**
- **MADE IN ITALY**

MADE IN ITALY

LIGHTING SOLUTIONS

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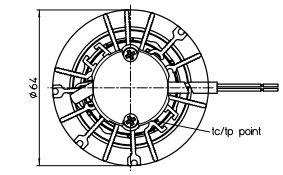
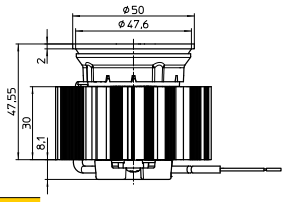
Evolve VCA-123 – up to 350 mA

Technical notes

Lens: Ø 50 mm, heat sink material: aluminium
Lumen maintenance: L80/B10; 50,000 hrs. 65 °C at t_p point
Max. operating temperature at t_c point: 80 °C
Temperature depends on installation situation and
has to be checked by the luminaire manufacturer.
Colour accuracy initially: 3 SDCM
Leads: Cu tinned, stranded conductors 0.5 mm²,
length: 200 mm, stripped lead ends (with plug on request)
With integrated cord grip
Packaging unit: 28 pcs.

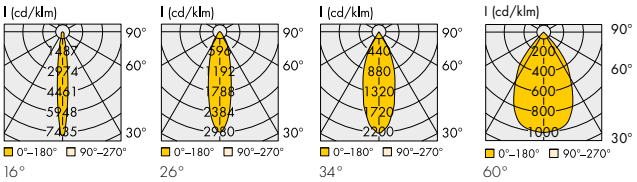




Electrical characteristics

Type	200 mA		250 mA		300 mA		350 mA	
	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)
VCA2-123	6.7	33.17	8.6	34.3	10.4	34.7	12.3	35.2

Voltage and power tolerance: ± 10%



Type	Ref. No.	Colour	Correlated colour temp. (K)	Typ. luminous flux and efficiency at 200 mA lm	200 mA lm/W	250 mA lm	250 mA lm/W	300 mA lm	300 mA lm/W	350 mA lm	350 mA lm/W	CRI R_a	Beam angle °	Light intensity at max. current Candela
Warm white – 2700 K														
Evolve VCA2-123 927	**572302**	warm white	2700	785	117	965	112	1140	110	1290	105	92	16	9530
Evolve VCA2-123 927	**572303**	warm white	2700	775	116	950	110	1125	108	1275	104	92	26	3760
Evolve VCA2-123 927	**572304**	warm white	2700	800	119	985	115	1165	112	1320	107	92	34	2890
Evolve VCA2-123 927	**572305**	warm white	2700	800	119	985	115	1165	112	1320	107	92	60	1140
Warm white – 3000 K														
Evolve VCA2-123 930	**572306**	warm white	3000	840	125	1025	119	1215	117	1375	112	92	16	10160
Evolve VCA2-123 930	**572307**	warm white	3000	830	124	1015	118	1200	115	1360	111	92	26	4010
Evolve VCA2-123 930	**572308**	warm white	3000	860	128	1050	122	1240	119	1405	114	92	34	3080
Evolve VCA2-123 930	**572309**	warm white	3000	860	128	1050	122	1240	119	1405	114	92	60	1210
Neutral white – 4000 K														
Evolve VCA2-123 940	**572310**	neutral white	4000	860	128	1055	123	1250	120	1415	115	92	16	10460
Evolve VCA2-123 940	**572311**	neutral white	4000	850	127	1045	122	1235	119	1400	114	92	26	4120
Evolve VCA2-123 940	**572312**	neutral white	4000	880	131	1080	126	1280	123	1450	118	92	34	3170
Evolve VCA2-123 940	**572313**	neutral white	4000	880	131	1080	126	1280	123	1450	118	92	60	1250

Production tolerance of luminous flux and efficiency: ± 10%

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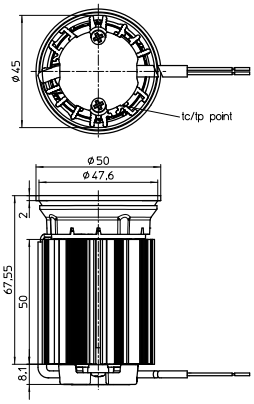
Evolve VCA2-123 – up to 300 mA

Technical notes

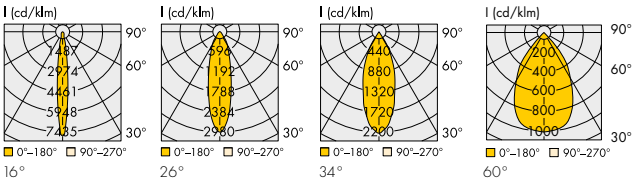
Lens: Ø 50 mm, heat sink material: aluminium
Lumen maintenance: L80/B10; 50,000 hrs. 65 °C at t_p point
Max. operating temperature at t_c point: 80 °C
Temperature depends on installation situation and
has to be checked by the luminaire manufacturer.
Colour accuracy initially: 3 SDCM
Leads: Cu tinned, stranded conductors 0.5 mm²,
length: 200 mm, stripped lead ends (with plug on request)
With integrated cord grip
Packaging unit: 45 pcs.



Electrical characteristics

Type	200 mA		250 mA		300 mA	
	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)
VCA2-123	6.7	33.17	8.6	34.3	10.4	34.7

Voltage and power tolerance: ± 10%



Type	Ref. No.	Colour	Correlated colour temp. (K)	Typ. luminous flux and efficiency at 200 mA lm	200 mA lm/W	250 mA lm	250 mA lm/W	300 mA lm	300 mA lm/W	CRI R_a	Beam angle °	Light intensity at max. current Candela
Warm white – 2700 K												
Evolve VCA2-123 927	**572290**	warm white	2700	785	117	965	112	1140	110	92	16	8430
Evolve VCA2-123 927	**572291**	warm white	2700	775	116	950	110	1125	108	92	26	3310
Evolve VCA2-123 927	**572292**	warm white	2700	800	119	985	115	1165	112	92	34	2550
Evolve VCA2-123 927	**572293**	warm white	2700	800	119	985	115	1165	112	92	60	1010
Warm white – 3000 K												
Evolve VCA2-123 930	**572294**	warm white	3000	840	125	1025	119	1215	117	92	16	8980
Evolve VCA2-123 930	**572295**	warm white	3000	830	124	1015	118	1200	115	92	26	3540
Evolve VCA2-123 930	**572296**	warm white	3000	860	128	1050	122	1240	119	92	34	2710
Evolve VCA2-123 930	**572297**	warm white	3000	860	128	1050	122	1240	119	92	60	1070
Neutral white – 4000 K												
Evolve VCA2-123 940	**572298**	neutral white	4000	860	128	1055	123	1250	120	92	16	9240
Evolve VCA2-123 940	**572299**	neutral white	4000	850	127	1045	122	1235	119	92	26	3640
Evolve VCA2-123 940	**572300**	neutral white	4000	880	131	1080	126	1280	123	92	34	2800
Evolve VCA2-123 940	**572301**	neutral white	4000	880	131	1080	126	1280	123	92	60	1110

Production tolerance of luminous flux and efficiency: ± 10%

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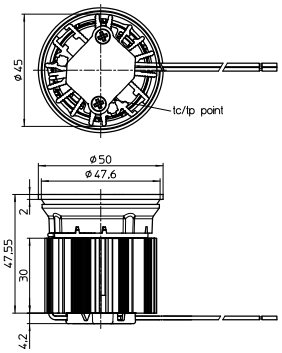
Evolve VCA2-123 – up to 200 mA

Technical notes

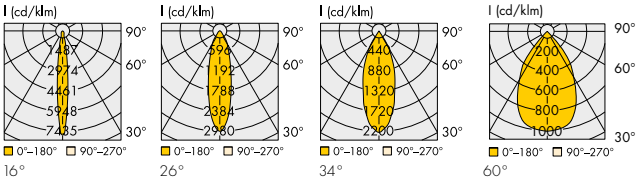
Reflector: Ø 50 mm, heat sink material: aluminium
Lumen maintenance: L80/B10; 50,000 hrs. 65 °C at t_p point
Max. operating temperature at t_c point: 90 °C
Temperature depends on installation situation and
has to be checked by the luminaire manufacturer.
Colour accuracy initially: 3 SDCM
Leads: Cu tinned, stranded conductors 0.5 mm²,
length: 200 mm, stripped lead ends (with plug on request)
With integrated cord grip
Packaging unit: 45 pcs.



Electrical characteristics

Type	150 mA		200 mA	
	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)
VCA2-123	4.95	33.0	6.7	33.7

Voltage and power tolerance: ± 10%



Type	Ref. No.	Colour	Correlated colour temp. K	Typ. luminous flux and efficiency at 150 mA lm	150 mA lm/W	200 mA lm	200 mA lm/W	CRI R_a	Beam angle °	Light intensity at max. current Candela
Warm white – 2700 K										
Evolve VCA2-123 927	**572915**	warm white	2700	605	122	785	117	92	16	5800
Evolve VCA2-123 927	**572916**	warm white	2700	600	121	775	116	92	26	2280
Evolve VCA2-123 927	**572917**	warm white	2700	620	125	800	119	92	34	1750
Evolve VCA2-123 927	**572918**	warm white	2700	620	125	800	119	92	60	690
Warm white – 3000 K										
Evolve VCA2-123 930	**572919**	warm white	3000	645	130	840	125	92	16	6210
Evolve VCA2-123 930	**571564**	warm white	3000	635	128	830	124	92	26	2450
Evolve VCA2-123 930	**571574**	warm white	3000	660	133	860	128	92	34	1880
Evolve VCA2-123 930	**572920**	warm white	3000	660	133	860	128	92	60	740
Neutral white – 4000 K										
Evolve VCA2-123 940	**572921**	neutral white	4000	665	134	860	128	92	16	6360
Evolve VCA2-123 940	**572922**	neutral white	4000	660	133	850	127	92	26	2500
Evolve VCA2-123 940	**572923**	neutral white	4000	680	137	880	131	92	34	1930
Evolve VCA2-123 940	**572924**	neutral white	4000	680	137	880	131	92	60	760

Production tolerance of luminous flux and efficiency: ± 10%

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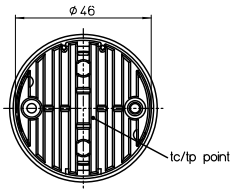
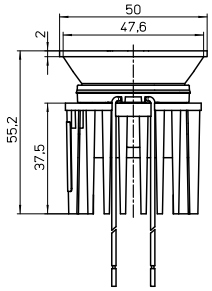
Evolve VCA2-123 – up to 150 mA

Technical notes

Reflector: Ø 50 mm, heat sink material: Thermoconductive resin
Lumen maintenance: L80/B10; 50,000 hrs. 65 °C at t_p point
Max. operating temperature at t_c point: 90 °C
Temperature depends on installation situation and
has to be checked by the luminaire manufacturer.
Colour accuracy initially: 3 SDCM
Leads: Cu tinned, stranded conductors 0.5 mm²,
length: 200 mm, stripped lead ends (with plug on request)
With integrated cord grip
Packaging unit: 45 pcs.

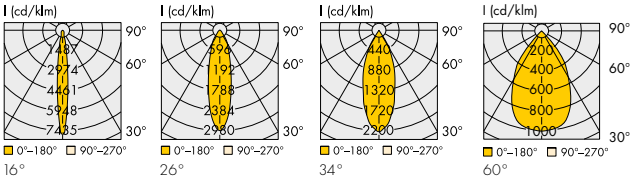




Electrical characteristics

Type	150 mA	
	P_{el} (W)	V_f (V)
VCA2-123	4.95	33.0

Voltage and power tolerance: ± 10%



Type	Ref. No.	Colour	Correlated colour temp. K	Typ. luminous flux and efficiency at 150 mA lm	lm/W	CRI R_a	Beam angle °	Light intensity at max. current Candela
Warm white – 2700 K								
Evolve VCA2-123 927	**572817**	warm white	2700	605	122	92	16	4470
Evolve VCA2-123 927	**572818**	warm white	2700	600	121	92	26	1770
Evolve VCA2-123 927	**572819**	warm white	2700	620	125	92	34	1360
Evolve VCA2-123 927	**572820**	warm white	2700	620	125	92	60	540
Warm white – 3000 K								
Evolve VCA2-123 930	**572821**	warm white	3000	645	130	92	16	4770
Evolve VCA2-123 930	**572822**	warm white	3000	635	128	92	26	1870
Evolve VCA2-123 930	**572823**	warm white	3000	660	133	92	34	1440
Evolve VCA2-123 930	**572824**	warm white	3000	660	133	92	60	570
Neutral white – 4000 K								
Evolve VCA2-123 940	**572825**	neutral white	4000	665	134	92	16	4920
Evolve VCA2-123 940	**572826**	neutral white	4000	660	133	92	26	1940
Evolve VCA2-123 940	**572827**	neutral white	4000	680	137	92	34	1490
Evolve VCA2-123 940	**572828**	neutral white	4000	680	137	92	60	590

Production tolerance of luminous flux and efficiency: ± 10%

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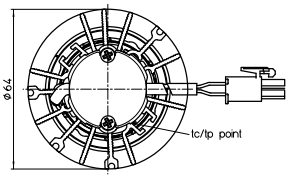
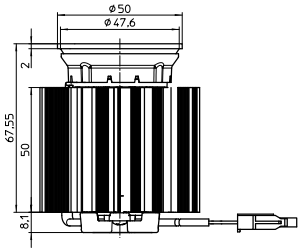
Evolve Halo

Dim2Warm

Technical notes

Lens: Ø 50 mm
Heat sink material: aluminium
Lumen maintenance: L70/B10; 30,000 hrs. 65 °C (350 mA) at t_p point
Max. operating temperature at t_c point: 65 °C at 350 mA
Temperature depends on installation situation and has to be checked by the luminaire manufacturer.
Colour accuracy initially: 3 SDCM
Leads: Cu tinned, stranded conductors 0.5 mm², length: 200 mm, with plug
With integrated cord grip
Weight: 160 g
Packaging unit: 28 pcs.

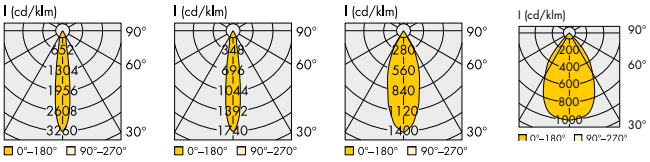




Electrical characteristics

Type	50 mA		350 mA	
	P_{el} (W)	V_f (V)	P_{el} (W)	V_f (V)
Evolve HALO	1.6	31.4	12.9	37

Voltage and power tolerance: ± 10%



18° 30° 40° 60°

Type	**Ref. No.**	Colour	Correlated colour temperature	Typ. luminous flux and colour temperature at 50 mA		350 mA		CRI	Beam angle	Light intensity at max. current
			K	lm	K	lm	K	R_a	°	Candela
Evolve HALO – Warm white										
Evolve HALO	**on request**	warm white	3000 –> 2000	115	2000	1060	3000	90	18	3400
Evolve HALO	**on request**	warm white	3000 –> 2000	110	2000	1040	3000	90	30	1800
Evolve HALO	**on request**	warm white	3000 –> 2000	120	2000	1090	3000	90	40	1520
Evolve HALO	**on request**	warm white	3000 –> 2000	120	2000	1090	3000	90	60	950

Production tolerance of luminous flux: ± 10%

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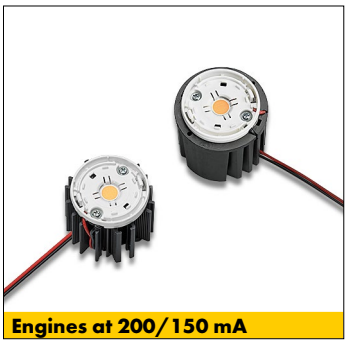
LED Engines for Evolve 50 and Active PLUS

LEDSpot engine equipped with LED module, holder, thermal pad, heat sink and leads but without reflector or optics

Engines at 350/300 mA



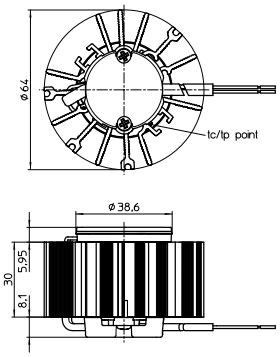
Engines at 200/150 mA

LEDSpot Engine HALO

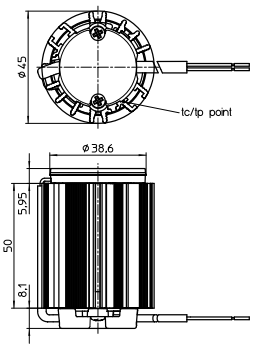
Technical notes

For optics Evolve and reflectors PLUS
Optics fixation: click-in
Heat sink material: aluminium / thermoconductive resin
Lumen maintenance:
L80/B10;
50,000 hrs. at max. allowed operation current and
65 °C at t_p point (Halo: see page 9)
Temperature depends on installation situation and has to be checked by the luminaire manufacturer.
Colour accuracy initially: 3 SDCM
Leads: Cu tinned, stranded conductors 0.5 mm²,
length: 200 mm, stripped lead ends (with plug on request)
With integrated cord grip
Packaging unit: see page 10

A – Engine 350 mA



B – Engine 300 mA



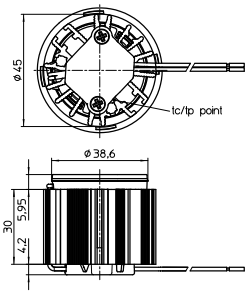
Maximum ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the modules.

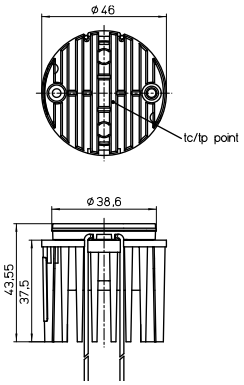
Type	Ambient temperature range (t_a)		Operation temp. at t_c point with max. current		Storage temperature range		Max. allowed repetitive peak current
	°C min.	°C max.	°C min.	°C max.	°C min.	°C max.	mA
VCA2-123	–20	+45	–25	+80	–40	+90	600

Temperatures depend on installation situation and has to be checked by the luminaire manufacturer.

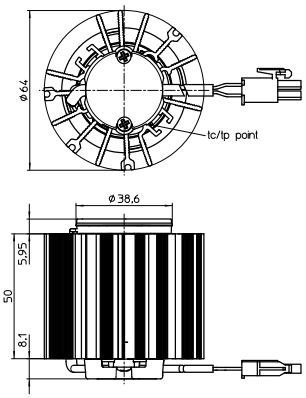
C – Engine 200 mA



D – Engine 150 mA



E – Engine Halo



The values contained in this data sheet can change due to technical innovations. Any such changes will be made without separate notification.

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LED Engines for Evolve 50 and Active PLUS

Electrical characteristics

Type	Voltage DC (V)					Power consumption (W)				
	150 mA typ.	200 mA typ.	250 mA typ.	300 mA typ.	350 mA min.	150 mA typ.	200 mA typ.	250 mA typ.	300 mA typ.	350 mA min.
Engine/Evolve VCA2-123	33.0	33.7	34.3	34.7	35.2	5.0	6.7	8.6	10.4	12.3
Engine Halo/Evolve Halo	33,4	34,9	35,9	36,4	37,0	5,0	7,0	8,9	10,9	12,9

Voltage and power tolerance: ± 10%

Optical characteristics

at t_p 70 °C

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at 250 mA lm	lm/W	300 mA lm	lm/W	350 mA lm	lm/W	CRI R_a
Engines up to 350mA – Drawing A				Pel=8.6W/Vf=34.3V		Pel=10.4W/Vf=34.7V		Pel=12.3W/Vf=35.2V		
Engine VCA2-123 927	**572242**	warm white	2700	1095	127	1295	125	1470	120	92
Engine VCA2-123 930	**572288**	warm white	3000	1165	135	1380	133	1565	127	92
Engine VCA2-123 940	**572289**	neutral white	4000	1200	140	1420	137	1610	131	92

Production tolerance of luminous flux and efficiency: ± 10%

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at 200 mA lm	lm/W	250 mA lm	lm/W	300 mA lm	lm/W	CRI R_a
Engines up to 300mA – Drawing B				Pel=6.7W/Vf=33.7V		Pel=8.6W/Vf=34.3V		Pel=10.4W/Vf=34.7V		
Engine VCA2-123 927	**572286**	warm white	2700	890	133	1095	127	1295	125	92
Engine VCA2-123 930	**572166**	warm white	3000	955	143	1165	135	1380	133	92
Engine VCA2-123 940	**572287**	neutral white	4000	980	146	1200	140	1420	137	92

Production tolerance of luminous flux and efficiency: ± 10%

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at 150 mA lm	lm/W	200 mA lm	lm/W	CRI R_a
Engines up to 200mA – Drawing C				Pel=5.0W/Vf=33.0V		Pel=6.7W/Vf=33.7V		
Engine VCA2-123 927	**572480**	warm white	2700	695	139	890	133	92
Engine VCA2-123 930	**571577**	warm white	3000	740	148	955	143	92
Engine VCA2-123 940	**572481**	neutral white	4000	760	152	980	146	92

Production tolerance of luminous flux and efficiency: ± 10%

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at 150 mA lm	lm/W	CRI R_a
Engines up to 150mA – Drawing D				Pel=5.0W/Vf=33.0V		
Engine VCA2-123 927	**572814**	warm white	2700	695	139	92
Engine VCA2-123 930	**572815**	warm white	3000	740	148	92
Engine VCA2-123 940	**572816**	neutral white	4000	760	152	92

Production tolerance of luminous flux and efficiency: ± 10%

Type	Ref. No. without connector	Ref. No. with connector	Colour	Correlated colour temperature K	Typ. luminous flux and colour temperature at 50 mA lm	K	350 mA lm	K	CRI R_a
LEDSpot Engine Halo – Drawing E									
Engine Halo 350mA	**569772**	**569773**	warm white	3000 –> 2000	130	2000	1200	3000	90

Production tolerance of luminous flux and efficiency: ± 10%

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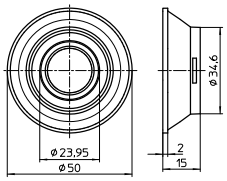
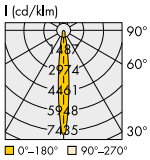
Lenses Evolve 50 for LED Engines



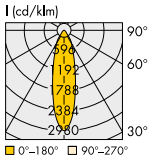
Technical notes
For click-in fixation on holders Easy
Diameter: 50 mm
Material: PC
Operating temperature: –25 to 90 °C
Storage temperature: –40 to 90 °C

Ref. No.	For LED modules	Beam angle (°)	Cover	Optical efficiency (%)	Weight g
603672	VCA2-123	16	–	87	15
603673	VCA2-123	26	–	86	15
603674	VCA2-123	34	–	89	15
604879	VCA2-123	60	–	86	15

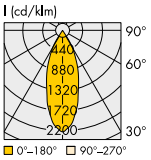
* In addition with mixing chamber



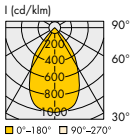
16°



26°

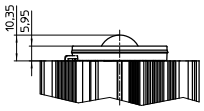


34°

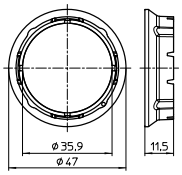


60°

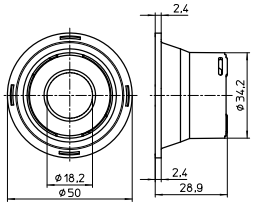
***Mixing Chamber for Halo**
Material: PC
Fixation: click-in
Ref. No.: 604024



Flange Evolve
To reduce light leakage (optional)
Material: PBT, black
Ref. No.: 603681

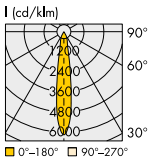


Reflectors PLUS for LED Engines

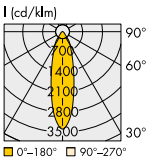


Technical notes
For click-in fixation on holders Easy
Diameter: 50 mm
Material: PC
Operating temperature: –25 to 90 °C
Storage temperature: –40 to 90 °C

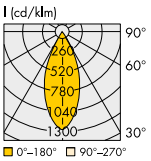
Ref. No.	For LED modules	Beam angle (°)	Cover	Optical efficiency (%)	Weight g
603685	VCA2-123,	18	Clear	87	10
603687	VCA2-123,	24	Clear	86	10
604919	VCA2-123,	42	Clear	87	10
603686	VCA2-123, Halo	20	Frost	86	10
603688	VCA2-123, Halo	26	Frost	85	10
604920	VCA2-123, Halo	45	Frost	85	10



18°



24°



42°

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LEDSpots Evolve 50

General information

Performance acc. to IEC 62717: t_p = 85 °C; 100,000 hrs.

Packaging unit

Type	Packaging unit pcs.	Box dimensions (LxWxH) mm	Weight single (g)	Gross weight packaging unit (g)
Engine - 350mA	28	600x400x90	110	3480
Engine - 300mA	45	600x400x80	100	4900
Engine - 200mA	90	600x400x80	80	7600
Engine - 150mA	45	600x400x110	100	4900
Engine HALO	28	600x400x90	140	4320
Reflector PLUS	30	370x290x35	10-	700
Lenses Evolve 50	30	370x290x35	15	850
Evolve - 350mA	28	600x400x90	120	3280
Evolve - 300mA	45	600x400x105	110	5350
Evolve - 200mA	45	600x400x80	90	4450
Evolve - 150mA	45	600x400x105	110	5350
Evolve HALO	28	600x400x105	150	4000

EPREL information

Engine & Evolve VCA2-123 are a containing product of LED modules:
VS Type: VCA2-123-927; VCA2-123-930; VCA2-123-940

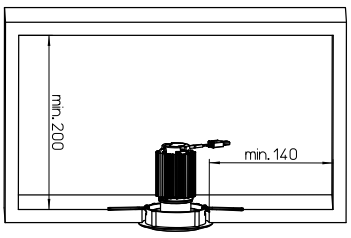
Light Source

Containing product Engine / Evolve Type	Light Source Type	EPREL Regi. No.	EE Class
Engine VCA2-123 927	VCA2-123-927	857254	E
Evolve VCA2-123 927			
Engine VCA2-123 930	VCA2-123-930	857255	
Evolve VCA2-123 930			
Engine VCA2-123 940	VCA2-123-940	857258	
Evolve VCA2-123 940			
Halo	WU-M-618	901672	F

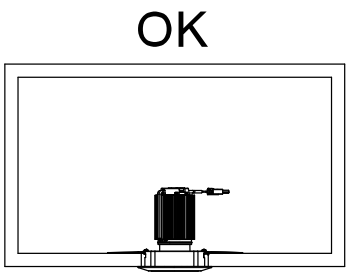
General safety and installation instructions

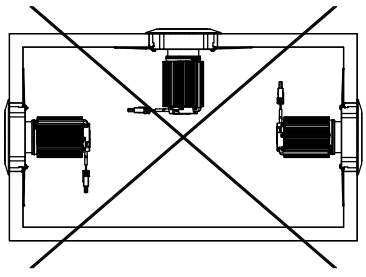
- VS product may only be installed and commissioned by authorised and fully qualified staff.
- These instructions must be carefully read before installing and commissioning the system, as this is the only way to ensure safe and correct handling.
- An external constant-current driver is required.
- Before any work is carried out on the equipment, it must be disconnected from the mains.
- All valid safety and accident-prevention regulations must be observed.
- The products should never be inexpertly opened. Repairs may only be undertaken by the manufacturer.

Built-in



Correct position





Product guarantee

- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com). We will be happy to send you these conditions upon request.

LED Constant Current Drivers

Please visit our homepage for details for suitable
LED constant current drivers:
www.vossloh-schwabe.com

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. The LED modules are designed for operation within a casing or luminaire. Safety regulations acc. to EN 60598 has to be observed. Installation must be carried out in a voltage-free state (i.e.disconnection from the mains).

- Mains frequency: 0 Hz
- LED built-in modules must not be subjected to any undue mechanical stress, e. g.:
  - handle LED modules carefully
  - avoid shear and compressive forces onto the optics during handling and installation
  - do not carry or move the LED engines by using the wires
- When installing/screwing the module into a luminaire, please ensure that the cables are not squeezed between luminaire and LED engine.
- The LED engine must not be used in hermetically sealed casings.
- Safe operation only possible by the use of external constant current sources ($I_{max.}$ see table "Electrical Characteristics").
- Operation is dependent on constant current drivers that should provide the following protective measures:
  - short-circuit protection
  - overload protection
  - overheating protection
  - SELV; Umax ≤ 60 V
  - Imax must not be exceede
- Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- The maximum output of the power supply must be observed.
- For optimal load of used constant current driver the modules can only be connected in series. The quantity of LED modules is limited by the sum of forward voltage and the capacity of used constant current driver. Safety regulations acc. to EN 60598 has to be observed if the sum of forward voltage exceed the permitted touchable value.
- A parallel connection of the LED engines is not allowed.
- Measurement tolerances:
  - luminous flux: ± 10 %
  - voltage: ± 3 %
  - CRI: ± 1 %
- Maximum allowed number of switching cycles: 15,000
- Please ensure standard ESD (electrostatic discharge) protection measures are employed when handling and installing LED modules. Electrostatic discharge can damage LEDs.
- To ensure problem-free operation, the specified maximum temperature at the t_c and t_p point (see "Operating Life") must be observed (measured in accordance with EN 60598-1). To satisfy this point, it is necessary to put measures in place to ensure any heat is dissipated from the LED engine to the environment.
- To ensure good thermal behaviour take care about "general safety and installation instructions".
- In the event of outdoor applications or applications in damp locations, care must be taken to protect LED assembly modules against humidity, splashes and jets of water. Any corrosion damage resulting from humidity or contact with condensation will not be recognised as a defect or manufacturing fault. LED assembly modules are not specially protected against foreign bodies or dust. Depending on the type of application, further protection must be ensured to prevent dust and foreign bodies from entering.
- Operating LED modules in the presence of certain chemical substances or in chemically enriched (aggressive) environments can impair module functionality or even cause total module failure. Detailed information can be found in our "Chemical Incompatibility" PDF on our website www.vossloh-schwabe.com
- The photobiological safety of the LED modules must be classified into risk groups in accordance with EN 62471
  Rating in accordance with IEC / TR 62778

  The following LED modules are in risk group 1:
  Up to 4000 K

LED module type	Max. allowed luminous flux per module (lm)	For higher luminous flux: E threshold to RG1 (lx)
VCA2-123	1692	1464

Applied Standards

EN 62031
LED modules for general lighting – Safety specifications

EN 62471-2
Photobiological safety of lamps and lamp systems

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