

LED ENGINES CC

ENGINE 18 V AND 36 V

GEN. 3



MODULAR ENGINES FOR MULTIPLE OPTICS CONFIGURATIONS

One of the main characteristics of this 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 lenses or reflectors 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



Engine 18 V and 36 V Gen. 3

- **MODULAR SYSTEM:
ENGINE + LENSES OR REFLECTORS**
- **COLOUR RENDERING INDEX: UP TO CRI 98**
- **LUMINOUS FLUX: UP TO 1400 LM (CRI 92)**
- **NARROW COLOUR TOLERANCES:
3 STEP MACADAM**
- **MADE IN ITALY**



LED Engines for Active PLUS and Evolve 50 – 18 V

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

Technical notes

For reflectors PLUS and lens Evolve

Optics fixation: click-in

Heat sink material: aluminium

Lumen maintenance:

L90/B20 (7.2/9.2)

50,000 hrs. at max. allowed operation current and

75 °C at t_p point

Temperature depends on installation situation and has to be checked by the luminaire manufacturer.

Colour accuracy initially: 3 SDCM (7.2/9.2)

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 7



LEDSpot Engine 9.2



LEDSpot Engine 7.2

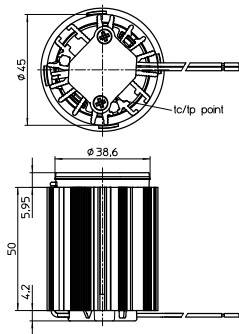
Maximum ratings

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

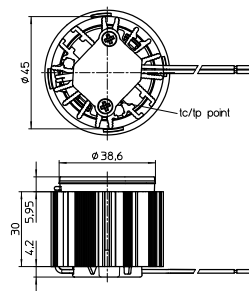
Type	Ambient temperature range (t_a)		Operation temp. at t_c point with max. current		Storage temperature range		Max. allowed repetitive peak current mA
	°C min.	°C max.	°C min.	°C max.	°C min.	°C max.	
Engine 7.3	-20	+45	-25	+90	-40	+90	1120
Engine 9.3	-20	+45	-25	+90	-40	+90	1120
Engine 7.2	-20	+45	-25	+90	-40	+90	1000
Engine 9.2	-20	+45	-25	+90	-40	+90	1000

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

A – Engine 9.2 Engine 9.3



B – Engine 7.2 Engine 7.3



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LED Engines for Evolve 50 and Active PLUS – 18 V

Electrical characteristics

Type	350 mA		400 mA		450 mA		500 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)
Engine 7.3 / Evolve 7.3	5.81	16.6	6.72	16.8	-	-	-	-
Engine 9.3 / Active 9.3	5.81	16.6	6.72	16.8	7.65	17	8.6	17.2
Engine 7.2	6.0	17.1	6.9	17.3	-	-	-	-
Engine 9.2	6.0	17.1	6.9	17.3	7.8	17.4	8.8	17.6

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				CRI
				450 mA		500 mA		
				lm	lm/W	lm	lm/W	
Drawing A				P _{el} =7.65W/V _f =17.0V		P _{el} =8.6W/V _f =17.2V		
Engine 9.3 -927K	572959	warm white	2700	940	124	1030	120	90
Engine 9.3 -930K	572960	warm white	3000	980	129	1080	126	90
Engine 9.3 -940K	572961	neutral white	4000	1040	137	1150	134	90

Production tolerance of luminous flux and efficiency: ± 10%

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at				CRI
				350 mA		400 mA		
				lm	lm/W	lm	lm/W	
Drawing B				P _{el} =5.81W/V _f =16.6V		P _{el} =6.72W/V _f =16.8V		
Engine 7.3 -927K	572956	warm white	2700	745	128	840	125	90
Engine 7.3 -930K	572957	warm white	3000	780	134	880	131	90
Engine 7.3 -940K	572958	neutral white	4000	825	142	930	138	90

Production tolerance of luminous flux and efficiency: ± 10%

LED Engines: Full Spectrum

Optical characteristics Full Spectrum

at t_p 70 °C

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at				CRI
				450 mA		500 mA		
				lm	lm/W	lm	lm/W	
Drawing A				P _{el} =7.8W/V _f =17.4V		P _{el} =8.8W/V _f =17.6V		
Engine 9.2 -927 FS	573009	warm white	2700	740	95	810	92	98
Engine 9.2 -930 FS	573010	warm white	3000	800	103	880	100	98
Engine 9.2 -940 FS	573011	neutral white	4000	870	112	960	109	98

Production tolerance of luminous flux and efficiency: ± 10%

Type	Ref. No.	Colour	Correlated colour temperature K	Typ. luminous flux and efficiency at				CRI
				350 mA		400 mA		
				lm	lm/W	lm	lm/W	
Drawing B				P _{el} =6.0W/V _f =17.1V		P _{el} =6.9W/V _f =17.3V		
Engine 7.2 -927 FS	573006	warm white	2700	590	98	665	96	98
Engine 7.2 -930 FS	573007	warm white	3000	635	106	715	104	98
Engine 7.2 -940 FS	573008	neutral white	4000	695	116	785	114	98

Production tolerance of luminous flux and efficiency: ± 10%

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LED Engines for Active PLUS and Evolve 50 – 36 V

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

Technical notes

For reflectors PLUS and lenses Evolve

Optics fixation: click-in

Heat sink material: aluminium / thermoconductive resin

Lumen maintenance:

L80/B10

50,000 hrs. at max. allowed operation current and

75 °C at t_p point

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 7



Engines at 350/300 mA



Engines at 200/150 mA



LEDSpot Engine HALO

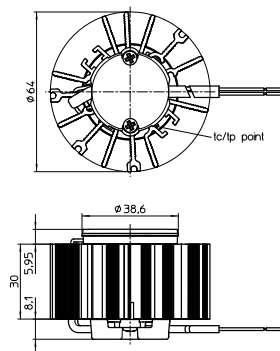
Maximum ratings

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

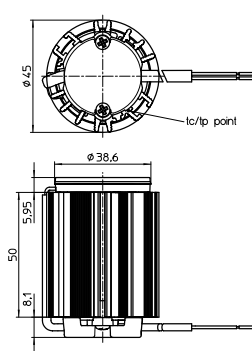
Type	Ambient temperature range (T _a)		Operation temp. at T _c point with max. current		Storage temperature range		Max. allowed repetitive peak current mA
	°C min.	°C max.	°C min.	°C max.	°C min.	°C max.	
Engine/VCA2-123	-20	+45	-25	+80	-40	+90	600

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

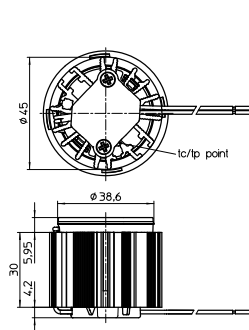
A – Engine 350 mA



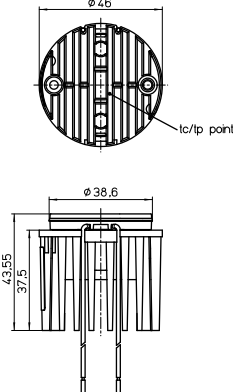
B – Engine 300 mA



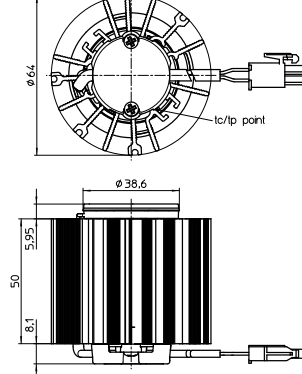
C – Engine 200 mA



D – Engine 150 mA



E – Engine Halo



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LED Engines for and Evolve 50 and Active PLUS - 36 V

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						CRI
				250 mA		300 mA		350 mA		
				lm	lm/W	lm	lm/W	lm	lm/W	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						CRI
				200 mA		250 mA		300 mA		
				lm	lm/W	lm	lm/W	lm	lm/W	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				CRI
				150 mA		200 mA		
				lm	lm/W	lm	lm/W	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	572577	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		CRI
				150 mA		
				lm	lm/W	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.		Colour	Correlated colour temperature K	Typ. luminous flux and colour temperature at				CRI
	without connector	with connector			50 mA		350 mA		
				lm	K	lm	K	R_a	
LEDspot Engine Halo - Drawing E									
Engine Halo 350mA	569772	569773	warm white	3000 -> 2000	130	2000	1200	3000	90

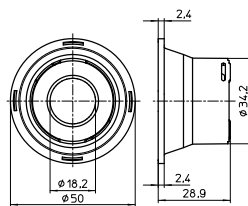
Production tolerance of luminous flux and efficiency: ± 10%

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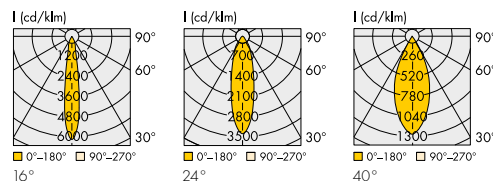
Reflectors Active PLUS for LED Engines

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



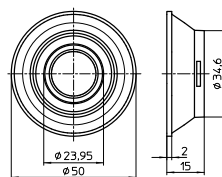
Ref. No.	Type	Beam angle (°)		Cover	Optical efficiency (%)	Weight g
		VCA2-123	7.2/7.3/9.2/9.3			
603685	Engine	18	16	Clear	87	10
603687	Engine	24	24	Clear	86	10
604919	Engine	42	40	Clear	87	10
603686	Engine	20	19	Frost	86	10
603688	Engine	26	26	Frost	85	10
604920	Engine	45	42	Frost	85	10



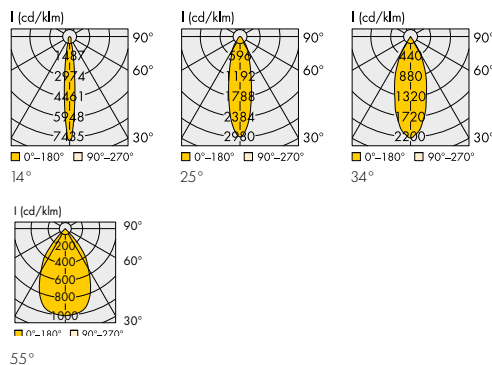
Optics Evolve 50 for LED Engines

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

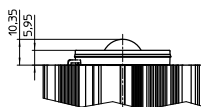


Ref. No.	Type	Beam angle (°)		Optical efficiency (%)	Weight g
		VCA2-123	7.2/7.3/9.2/9.3		
603672	Engine	16	14	87	15
603673	Engine	26	25	86	15
603674	Engine	34	34	89	15
604879	Engine	60	55	86	15



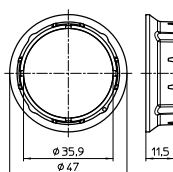
Mixing Chamber for Halo

Material: PC
Fixation: click-in
Ref. No.: 604024



Flange Evolve

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



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LEDSpots Evolve 50

General information

Performance acc. to IEC 62717: $t_p = 85\text{ }^\circ\text{C}$; 100,000 hrs.

Packaging unit

Type	Packaging unit pcs.	Box dimensions (LxWxH) mm	Weight single (g)	Gross weight packaging unit (g)
Engine 9.2 / 9.3	45	600x400x110	100	4900
Engine 7.2 / 7.3	45	600x400x80	80	4000
Engine VCA2-123 - 350mA	28	600x400x90	110	3480
Engine VCA2-123 - 300mA	45	600x400x80	100	4900
Engine VCA2-123 - 200mA	90	600x400x80	80	7500
Engine VCA2-123 - 150mA	90	600x400x80	100	7500
Engine HALO	28	600x400x90	140	4320
Reflector PLUS	30	370x290x35	10	700
Lenses Evolve 50	30	370x290x35	15	850

EPREL information

Engines Active PLUS and Evolve 50 are containing Products of LED Modules

Light Source

Containing product Engine / Evolve Type	Light Source		
	Type	EPREL Reg. No.	EE Class
Engine 9.3/7.3 - 927	BXRE-27G0800-D-8x	869189	F
Engine 9.3/7.3 - 930	BXRE-30G0800-D-8x	869616	F
Engine 9.3/7.3 - 940	BXRE-40G0800-D-8x	870295	F
Engine 9.2/7.2 - 927	BXRE-27S0801-D-7	869383	G
Engine 9.2/7.2 - 930	BXRE-30S0801-D-7	869837	F
Engine 9.2/7.2 - 940	BXRE-40S0801-D-7	870392	F
Engine VCA2-123 - 927	VCA2-123 - 927	857254	E
Engine VCA2-123 - 930	VCA2-123 - 930	857255	E
Engine VCA2-123 - 940	VCA2-123 - 940	857255	E
Engine HALO	WU-M618	901072	F

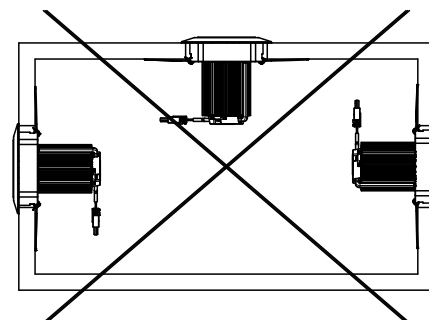
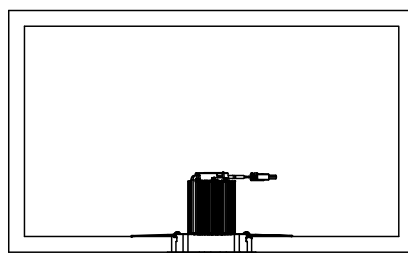
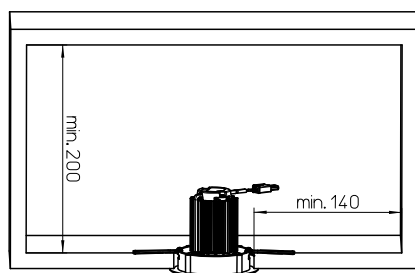
General safety and installation instructions

- 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

OK



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Produktgarantie

- 5 years
- The conditions for the Products 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

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; $U_{max} \leq 60\text{ V}$
 - I_{max} must not be exceeded
- 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: $\pm 10\%$
 - voltage: $\pm 3\%$
 - CRI: $\pm 1\%$
- 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

Type	LED module type	Max. allowed luminous flux per module (lm)	For higher luminous flux: E threshold to RG 1 (lx)
18V	BXRE-40G0800-D-8x	2335	1983
36V	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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