

LEDSPOTS CC

EVOLVE 50 – 18 V GEN. 3

7.3

9.3



NEW 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 – 18 V

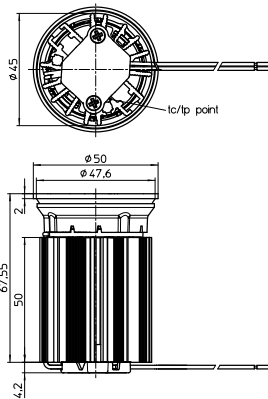
- COLOUR RENDERING INDEX: CRI 90
- FULL SPECTRUM: CRI98
- MODULAR SYSTEM: ENGINE + OPTICS
- NARROW COLOUR TOLERANCES: 3 STEP MACADAM
- LUMINOUS FLUX: UP TO 1030 LM
- MADE IN ITALY



Evolve 9.3

Technical notes

Lens: \varnothing 50 mm, heat sink material: aluminium
 Lumen maintenance: L90/B20; 50,000 hrs. 75 °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.

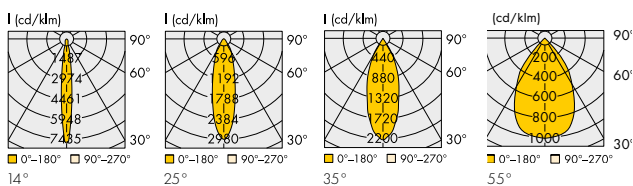


Evolve 9.3

Electrical characteristics

Type	450 mA		500 mA	
	P _{el} (W)	V _f (V)	P _{el} (W)	V _f (V)
9.3	7.65	17.0	8.6	17.2

Voltage and power tolerance: \pm 10%



Optical characteristics

at t_p 70 °C

Type	Ref. No.	Colour	Correlated colour temp. K	Typ. luminous flux and efficiency at				CRI R _a	Beam angle °	Light intensity at max. current Candela
				450 mA		500 mA				
				lm	lm/W	lm	lm/W			
Warm white – 2700 K				Pel=7.6W/Vf=17.0V Pel=8.6W/Vf=17.2V						
Evolve 9.3 -927	572994	warm white	2700	825	109	905	105	90	14	6485
Evolve 9.3 -927	572995	warm white	2700	815	107	895	104	90	25	2925
Evolve 9.3 -927	572996	warm white	2700	845	111	925	108	90	35	1925
Evolve 9.3 -927	572997	warm white	2700	845	111	925	108	90	55	870
Warm white – 3000 K										
Evolve 9.3 -930	572998	warm white	3000	860	113	950	110	90	14	6810
Evolve 9.3 -930	572999	warm white	3000	850	112	935	109	90	25	3055
Evolve 9.3 -930	573000	warm white	3000	880	116	970	113	90	35	2020
Evolve 9.2 -930	573001	warm white	3000	880	116	970	113	90	55	910
Neutral white – 4000 K										
Evolve 9.3 -940	573002	neutral white	4000	910	120	1010	117	90	14	7240
Evolve 9.3 -940	573003	neutral white	4000	900	118	1000	116	90	25	3265
Evolve 9.3 -940	573004	neutral white	4000	935	123	1030	120	90	35	2145
Evolve 9.3 -940	573005	neutral white	4000	935	123	1030	120	90	55	965

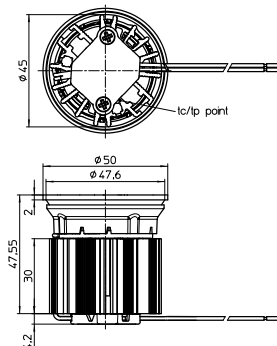
Production tolerance of luminous flux and efficiency: \pm 10%

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

Evolve 7.3

Technical notes

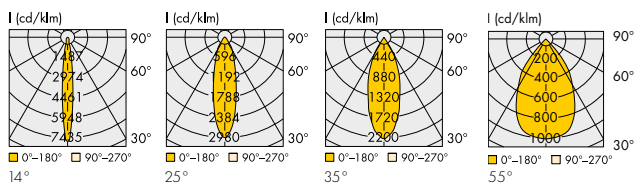
Lens: Ø 50 mm, heat sink material: aluminium
 Lumen maintenance: L90/B20; 50,000 hrs. 75 °C at t_p point
 Max. operating temperature at t_c point: 90 °C
 Temperature depends on installation situation and has to be checked by the luminaire manufacturer.
 Colour accuracy initially: 3 SDCM
 Leads: Cu tinned, 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	400 mA		500 mA	
	P _{el} (W)	V _f (V)	P _{el} (W)	V _f (V)
7.3	5.81	16.6	6.72	16.8

Voltage and power tolerance: ± 10%



Optical characteristics

at t_p 70 °C

Type	Ref. No.	Colour	Correlated colour temp. K	Typ. luminous flux and efficiency at				CRI R _a	Beam angle °	Light intensity at max. current Candela
				350 mA		400 mA				
				lm	lm/W	lm	lm/W			
Warm white – 2700 K										
Evolve 7.3 -927	572982	warm white	2700	655	113	740	110	90	14	5870
Evolve 7.3 -927	572983	warm white	2700	650	112	730	109	90	25	2310
Evolve 7.3 -927	572984	warm white	2700	670	115	755	112	90	35	1780
Evolve 7.3 -927	572985	warm white	2700	670	115	755	112	90	55	700
Warm white – 3000 K										
Evolve 7.3 -930	572986	warm white	3000	685	118	775	115	90	14	6260
Evolve 7.3 -930	572987	warm white	3000	675	116	765	114	90	25	2460
Evolve 7.3 -930	572988	warm white	3000	700	120	790	118	90	35	1900
Evolve 7.3 -930	572989	warm white	3000	700	120	790	118	90	55	750
Neutral white – 4000 K										
Evolve 7.3 -940	572990	neutral white	4000	725	125	820	122	90	14	6320
Evolve 7.3 -940	572991	neutral white	4000	715	123	810	121	90	25	2500
Evolve 7.3 -940	572992	neutral white	4000	740	127	835	124	90	35	1920
Evolve 7.3 -940	572993	neutral white	4000	740	127	835	124	90	55	770

Production tolerance of luminous flux and efficiency: ± 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

Technical notes

For optics Evolve and reflectors PLUS

Optics fixation: click-in

Heat sink material: aluminium

Lumen maintenance:

L90/B20 (7.2/7.3/9.2/9.3)

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.

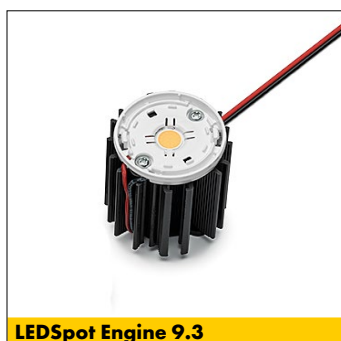
Colour accuracy initially: 3 SDCM (7.2/7.3/9.2/9.3)

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 9.3



LEDSpot Engine 7.3

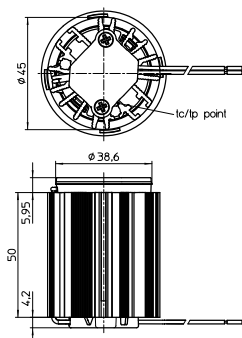
Maximum ratings

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

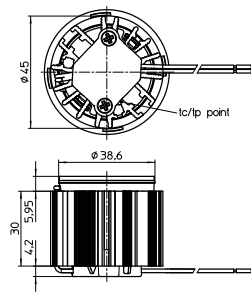
Type	Ambient temperature range (t_a)		Operation temp. at t_c point with max. current		Storage temperature range		Max. allowed repetitive peak current mA
	°C min.	°C max.	°C min.	°C max.	°C min.	°C max.	
Engine 7.3/ Evolve 7.3	-20	+45	-25	+90	-40	+90	1120
Engine 9.3/ Evolve 9.3	-20	+45	-25	+90	-40	+90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

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 / Evolve 9.3	5.81	16.6	6.72	16.8	7.65	17.0	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	R _a
Drawing A				P _{el} =7.65W/V _f =17.0V		P _{el} =8.6W/V _f =17.2V		
Engine 9.3 -927	572959	warm white	2700	940	124	1030	120	90
Engine 9.3 -930	572960	warm white	3000	980	129	1080	126	90
Engine 9.3 -940	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	R _a
Drawing B				P _{el} =5.81W/V _f =16.6V		P _{el} =6.72W/V _f =16.8V		
Engine 7.3 -927	572956	warm white	2700	745	128	840	125	90
Engine 7.3 -930	572957	warm white	3000	780	134	880	131	90
Engine 7.3 -940	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	R _a
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	R _a
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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Lenses Evolve 50 for LED Engines

Technical notes

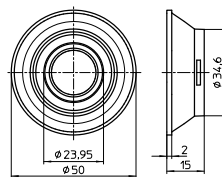
For click-in fixation on holders Easy

Diameter: 50 mm

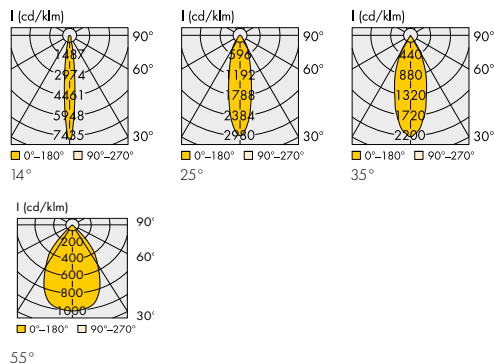
Material: PC

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	9.2, 7.2, 9.3, 7.3	14	—	87	15
603673	9.2, 7.2, 9.3, 7.3	25	—	86	15
603674	9.2, 7.2, 9.3, 7.3	35	—	89	15
604879	9.2, 7.2, 9.3, 7.3	55	—	86	15

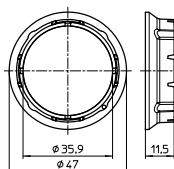


Flange Evolve

To reduce light leakage (optional)

Material: PBT, black

Ref. No.: 603681



Reflectors PLUS for LED Engines

Technical notes

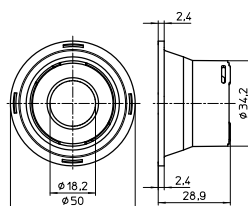
For click-in fixation on holders Easy

Diameter: 50 mm

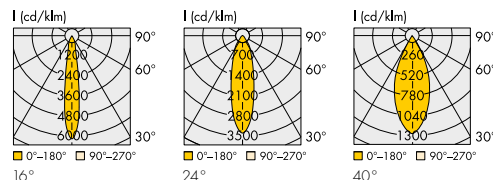
Material: PC

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	9.2, 7.2, 9.3, 7.3	16	Clear	87	10
603687	9.2, 7.2, 9.3, 7.3	24	Clear	86	10
604919	9.2, 7.2, 9.3, 7.3	40	Clear	87	10
603686	9.2, 7.2, 9.3, 7.3	19	Frost	86	10
603688	9.2, 7.2, 9.3, 7.3	26	Frost	85	10
604920	9.2, 7.2, 9.3, 7.3	42	Frost	85	10



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LEDSpots Evolve 50

General information

Performance acc. to IEC 62717: $t_p = 90\text{ °C}$ (S124) or $t_p = 85\text{ °C}$ (7.2/9.2); 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
Reflector PLUS	30	370x290x35	10	700
Lenses Evolve 50	30	370x290x35	15	850
Evolve 9.2 / 9.3	45	600x400x105	110	5350
Evolve 7.2 / 7.3	45	600x400x80	90	4450

EPREL information

Engine & Evolve 7.2/7.3/9.2/9.3 Are containing Products of LED Modules

Light Source

Containing product Engine / Evolve Type	Light Source Type	EPREL Reg. No.	EE Class
Engine/Evolve 7.3/9.3 - 927	BXRE-27G0800-D-8x	869189	F
Engine/Evolve 7.3/9.3 - 930	BXRE-30G0800-D-8x	869616	F
Engine/Evolve 7.3/9.3 - 940	BXRE-40G0800-D-8x	870295	F
Engine 7.2/9.2 - 927	BXRE-27S0801-D-73	869383	G
Engine 7.2/9.2 - 930	BXRE-30S0801-D-73	869837	F
Engine 7.2/9.2 - 940	BXRE-40S0801-D-73	870392	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.

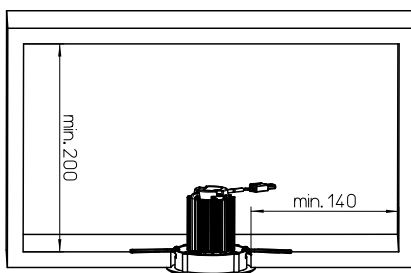
Produktgarantie

- 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

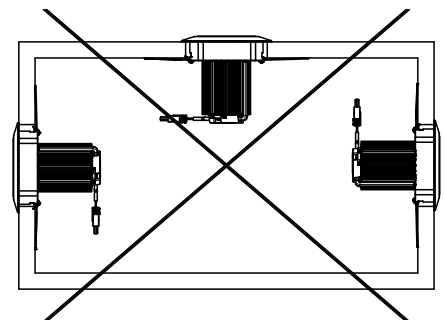
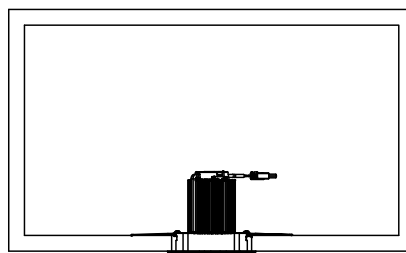
Please visit our homepage for details for suitable LED constant current drivers: www.vossloh-schwabe.com

BUILT IN



CORRECT POSITION

OK



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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; $U_{max} \leq 60$ 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: ± 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 RG 1 (lx)
BXRE-40G0800-D-8x	2335	1983

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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