PRODUCT FAMILY DATASHEET
SubstiTUBE® T9 EM

Circular LED tube for electromagnetic control gear (CCG) and AC mains

Areas of application

- General illumination within ambient temperatures from -20...+45 °C
- Corridors, stairways, parking garages
- Domestic applications
- Decorative applications

Product benefits

- Quick, simple and safe replacement without rewiring
- Energy savings of up to 50% (compared to T9 fluorescent lamp on CCG)
- Also suitable for operation at low temperatures
- Operation directly on 230 V AC mains possible

Product features

- LED alternative to classic T9 fluorescent lamps in CCG luminaires
- Uniform illumination
- Lifetime: up to 30,000 h
- Mercury-free and RoHS compliant



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TECHNICAL DATA

Electrical data

Product description	Nominal wattage	Construction wattage	Nominal voltage	Claimed equiv. conventional lamp power	Nominal current
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	12 W	12.00 W	220...240 V	22 W	60 mA
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	12 W	12.00 W	220...240 V	22 W	60 mA
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	20 W	20.00 W	220...240 V	32 W	100 mA
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	20 W	20.00 W	220...240 V	32 W	100 mA

Product description	Type of current	Operating frequency	Mains frequency	Max. lamp no. on circuit break. 10 A (B)	Max. lamp no. on circuit break. B10 A - CCG without compensation
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	AC	50/60 Hz	50/60 Hz	24	94
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	AC	50/60 Hz	50/60 Hz	24	94
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	AC	50/60 Hz	50/60 Hz	21	65
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	AC	50/60 Hz	50/60 Hz	21	65

Product description	Max. lamp no. on circuit break. B10 A - CCG with compensation	Max. lamp no. on circuit break. 16 A (B)	Max. lamp no. on circuit break. B16 A - CCG without compensation	Max. lamp no. on circuit break. B16 A - CCG with compensation	Power factor λ
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	15	30	150	18	> 0.90
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	15	30	150	18	> 0.90
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	13	25	105	16	> 0.90
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	13	25	105	16	> 0.90

Photometrical data

Product description	Luminous flux	Luminous efficacy	Lumen main.fact.at end of nom.life time	Light color (designation)	Color temperature
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	1320 lm	110 lm/W	0.70	Cool White	4000 K



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Product description	Luminous flux	Luminous efficacy	Lumen main.fact.at end of nom.life time	Light color (designation)	Color temperature
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	1320 lm	110 lm/W	0.70	Cool Daylight	6500 K
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	2200 lm	110 lm/W	0.70	Cool White	4000 K
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	2200 lm	110 lm/W	0.70	Cool Daylight	6500 K

Product description	Color rendering index Ra	Light color	Standard deviation of color matching	Rated LLMF at 6,000 h	Flickering metric (Pst LM)
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	≥80	840	≤6 sdcm	0.80	1
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	≥80	865	≤6 sdcm	0.80	1
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	≥80	840	≤6 sdcm	0.80	1
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	≥80	865	≤6 sdcm	0.80	1

Product description	Stroboscope effect metric (SVM)
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	0.40
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	0.40
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	0.40
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	0.40

Light technical data

Product description	Beam angle	Warm-up time (60 %)	Starting time	Rated beam angle (half peak value)
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	SPHERE_360	‹ 0.50 s	< 0.5 s	120.00 °
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	120 °	‹ 0.50 s	< 0.5 s	120.00 °
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	120 °	‹ 0.50 s	< 0.5 s	120.00 °
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	120 °	‹ 0.50 s	< 0.5 s	120.00 °

Dimensions & Weight



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Product description	Overall length	Diameter	Tube diameter	Maximum diameter
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	212.00 mm	212.00 mm	30,0 mm	212 mm
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	212.00 mm	212.00 mm	30,0 mm	212 mm
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	300.00 mm	300.00 mm	30,0 mm	300 mm
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	300.00 mm	300.00 mm	30,0 mm	300 mm

Product description	Product weight
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	145.00 g
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	145.00 g
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	220.00 g
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	220.00 g

Temperatures & operating conditions

Product description	Ambient temperature range	Maximum temperature at tc test point
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	-20...+45 °C	75 °C
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	-20...+45 °C	75 °C
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	-20...+45 °C	75 °C
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	-20...+45 °C	75 °C

Lifespan

Product description	Nominal lamp life time	Number of switching cycles	Lumen maintenance at end of serv	Rated lamp survival factor at 6,000
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	30000 h	200000	0.70	≥ 0.90
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	30000 h	200000	0.70	≥ 0.90
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	30000 h	200000	0.70	≥ 0.90
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	30000 h	200000	0.70	≥ 0.90



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Additional product data

Product description	Base (standard designation)	Mercury content	Design / version
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	G10q	0.0 mg	Frosted
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	G10q	0.0 mg	Frosted
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	G10q	0.0 mg	Frosted
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	G10q	0.0 mg	Frosted

Capabilities

Product description	Dimmable
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	No
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	No
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	No
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	No

Certificates & Standards

Product description	Energy efficiency class	Energy consumption	Type of protection	Standards	Photobiological safety group acc. to EN62778
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	E	12.00 kWh/1000h	IP20	CE / EAC	RG0
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	E	12.00 kWh/1000h	IP20	CE / EAC	RG0
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	E	20.00 kWh/1000h	IP20	CE / EAC	RG0
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	E	20.00 kWh/1000h	IP20	CE / EAC	RG0

LOGISTICAL DATA

Product description	Temperature range at storage
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	-20...+80 °C
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	-20...+80 °C
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	-20...+80 °C



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Product description	Temperature range at storage
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	-20...+80 °C

Energy labellling regulation data acc EU 2019/2015

Product description	Lighting technology used	Non-directional or directional	Mains or non-mains	Light source cap-type (or other electric interface)	Connected light source (CLS)
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	LED	NDLS	MLS	G10q	No
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	LED	NDLS	MLS	G10q	No
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	LED	NDLS	MLS	G10q	No
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	LED	NDLS	MLS	G10q	No

Product description	Color-tuneable light source	Envelope	High luminance light source	Anti-glare shield	Correlated colour temperature type
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	No	No	No	No	SINGLE_VALUE
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	No	No	No	No	SINGLE_VALUE
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	No	No	No	No	SINGLE_VALUE
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	No	No	No	No	SINGLE_VALUE

Product description	Standby power	Claim of equivalent power	Length	Height	Width
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	0.00	No	212.00 mm	212.00 mm	212.00 mm
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	0.00	No	212.00 mm	212.00 mm	212.00 mm
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	0.00	No	300.00 mm	300.00 mm	300.00 mm
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	0.00	No	300.00 mm	300.00 mm	300.00 mm

Product description	Chromaticity coordinate x	Chromaticity coordinate y	Beam angle	Survival factor	Displacement factor
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	0.382	0.380	SPHERE_360	0,90	0,70
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	0.312	0.328	SPHERE_360	0,90	0,70



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Product description	Chromaticity coordinate x	Chromaticity coordinate y	Beam angle	Survival factor	Displacement factor
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	0.382	0.380	SPHERE_360	0,90	0,70
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	0.312	0.328	SPHERE_360	0,90	0,70

Product description	LED light source replaces a fluorescent light source	EPREL ID	Model number
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	not applicable	716577	AC36307
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	not applicable	716578	AC36308
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	not applicable	716579	AC36309
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	not applicable	716580	AC36310

EQUIPMENT / ACCESSORIES

- Suitable for operation with low-loss and conventional control gears
- Suitable for operation with AC mains

Safety advice

- Not suitable for operation with electronic control gear.
- Operation in outdoor applications in suitable damp-proof luminaires possible according to data sheet and installation instruction.

APPLICATION ADVICE

For more detailed application information and graphics please see product datasheet.

SALES AND TECHNICAL SUPPORT

Sales and Technical Support www.ledvance.com

COUNTRY SPECIFIC INFORMATION

Product description	Product code	METEL-Code	SEG number	STK number	UK Org
SubstiTUBE T9 C EM 22 12 W/4000 K G10q	4058075604612	-	8296718	4930545	-
SubstiTUBE T9 C EM 22 12 W/6500 K G10q	4058075604650	-	8296719	4930546	-
SubstiTUBE T9 C EM 32 20 W/4000 K G10q	4058075604674	-	8296720	4930547	-
SubstiTUBE T9 C EM 32 20 W/6500 K G10q	4058075604698	-	8296721	4930548	-



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DOWNLOAD DATA

	DOWNLOAD DATA
PDF	User instruction SubstiTUBE® T9
PDF	User instruction SubstiTUBE® T9
PDF	User instruction SubstiTUBE® T9
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LOGISTICAL DATA

Product code	Packaging unit (Pieces/Unit)	Dimensions (length x width x height)	Gross weight	Volume
4058075604612	Folding box 1	38 mm x 220 mm x 260 mm	221.00 g	2.17 dm^3
4058075604650	Folding box 1	38 mm x 220 mm x 260 mm	221.00 g	2.17 dm^3
4058075604674	Folding box 1	38 mm x 308 mm x 348 mm	233.00 g	4.07 dm^3
4058075604698	Folding box 1	38 mm x 308 mm x 348 mm	233.00 g	4.07 dm^3

The mentioned product code describes the smallest quantity unit which can be ordered. One shipping unit can contain one or more single products. When placing an order, for the quantity please enter single or multiples of a shipping unit.

References / Links

- For current information see www.ledvance.com/substitube

Legal advice

- When used to replace a T9 fluorescent lamp the total energy efficiency and light distribution depends on the design of the lighting system.

DISCLAIMER

Subject to change without notice. Errors and omission excepted. Always make sure to use the most recent release.



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