

**to cool to protect to connect**



 made  
in  
Germany



ISO 9001  
ISO 14001  
ISO 27001

**Thermal management for LED applications**

## Heatsinks for LEDs



- suitable for free or forced convection
- heat sink dimensions are fitted to the respective LED type
- simple mounting by using thermally conductive adhesive foil, glue or screw mounting
- specific versions on customer's request
- double-sided adhesive thermal conductive foil **WLF ...** → E 7
- special design, surfaces and modification to customer specification on request
- **surface:** black anodised

<p><b>art. no.</b></p> <p><b>ICK LED R 23,5 x 14</b> WLF ... D 23</p>			<p><b><math>R_{th} = 18,58 \text{ K/W}</math></b></p>
<p><b>art. no.</b></p> <p><b>ICK LED R 23,5 x 14 G</b> WLF ... D 23</p>			
<p><b>art. no.</b></p> <p><b>ICK LED R 27 x 10</b> WLF ... D 27</p>			<p><b><math>R_{th} = 17,69 \text{ K/W}</math></b></p>
<p><b>art. no.</b></p> <p><b>ICK LED R 27 x 10 G</b> WLF ... D 27</p>			
<p><b>art. no.</b></p> <p><b>ICK LED R 28 x 15</b> WLF ... D 28</p>			<p><b><math>R_{th} = 15,24 \text{ K/W}</math></b></p>

## Heatsinks for LEDs

<p>art. no.</p> <p><b>ICK LED R 28 x 15 G</b> WLF ... D 28</p>		
<p>art. no.</p> <p><b>ICK LED R 29 x 11,5</b> WLF ... D 29</p>		<p><math>R_{th} = 17,26 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 29 x 11,5 G</b> WLF ... D 29</p>		
<p>art. no.</p> <p><b>ICK LED R 32 x 14</b> WLF ... D 32</p>		<p><math>R_{th} = 15,23 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 32 x 14 G</b> WLF ... D 32</p>		
<p>art. no.</p> <p><b>ICK LED R 33 x 10</b> WLF ... D 33</p>		<p><math>R_{th} = 17,6 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 33 x 10 G</b> WLF ... D 33</p>		

## Heatsinks for LEDs

<p>art. no.</p> <p><b>ICK LED R 33 x 16,5</b> WLF ... D 33</p>			<p><math>R_{th} = 13,87 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 33 x 16,5 G</b> WLF ... D 33</p>			
<p>art. no.</p> <p><b>ICK LED R 35 x 10</b> WLF ... D 35</p>			<p><math>R_{th} = 16,9 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 35 x 10 G</b> WLF ... D 35</p>			
<p>art. no.</p> <p><b>ICK LED R 36 x 12</b> WLF ... D 36</p>			<p><math>R_{th} = 12,88 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 36 x 12 G</b> WLF ... D 36</p>			
<p>art. no.</p> <p><b>ICK LED R 40 x 10</b> WLF ... D 40</p>			<p><math>R_{th} = 12,28 \text{ K/W}</math></p>

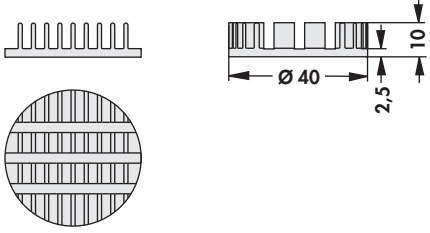
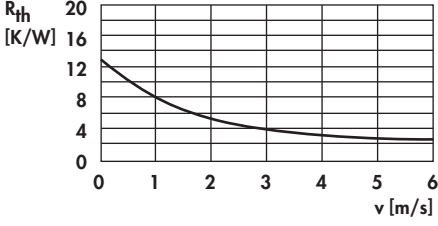
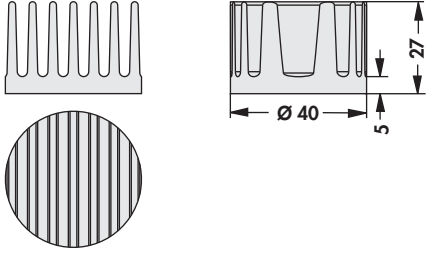
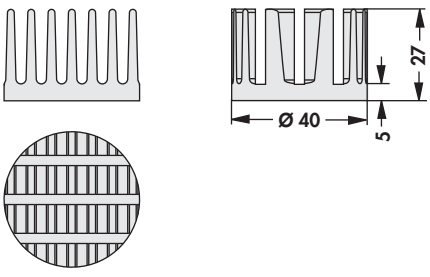
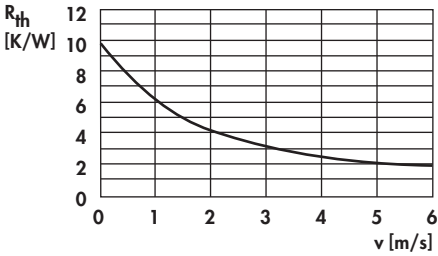
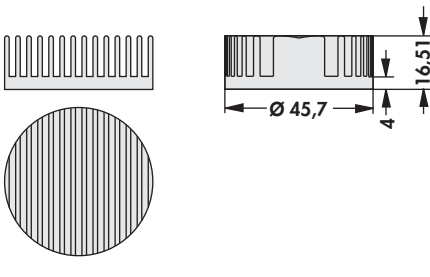
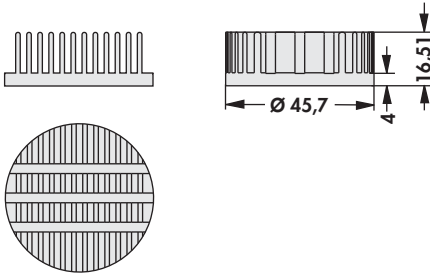
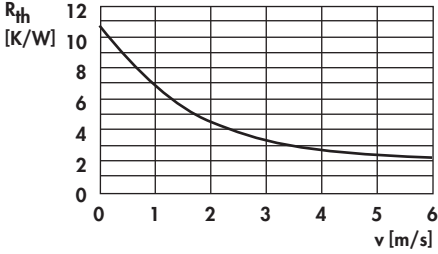
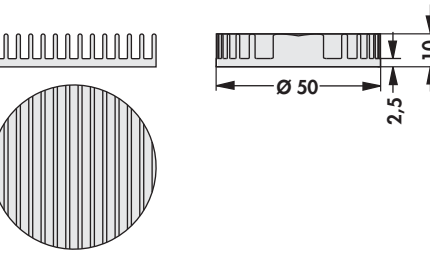
**B 37**

Pin heatsinks Ø  
Mounts  
Thermally conductive foil  
Thermal conductive paste

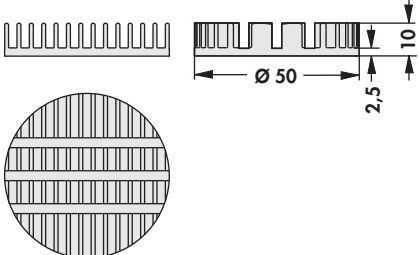
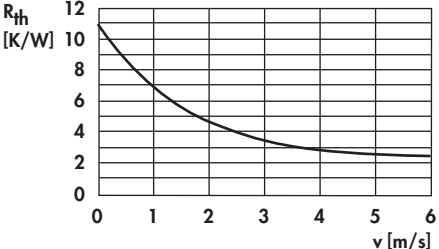
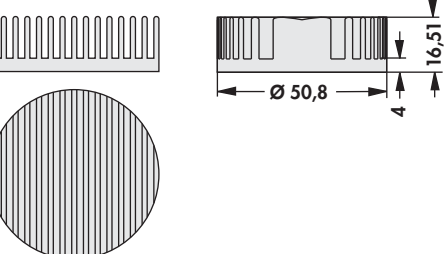
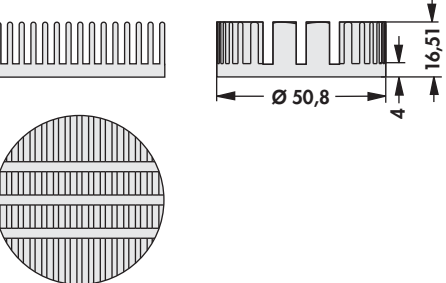
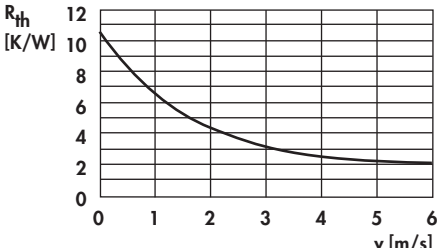
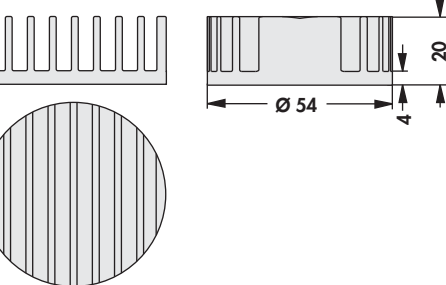
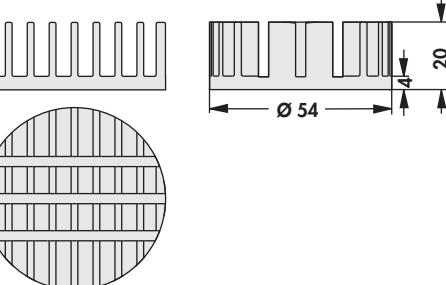
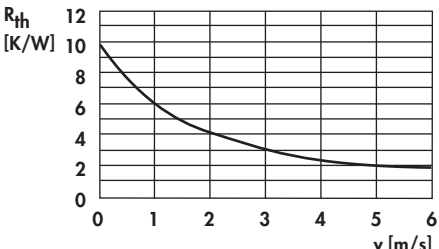
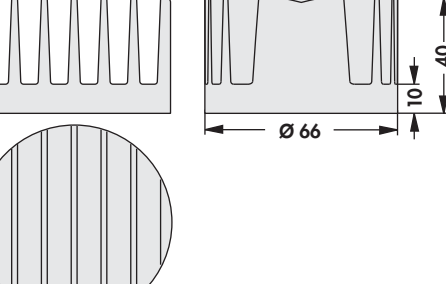
→ B 29 – 33  
→ E 44 – 48  
→ E 5 – 15  
→ E 21 – 22

Thermal conductive glue  
Hole pattern  
Heatsink profile-overview  
Technical introduction

→ E 23 – 24  
→ A 21  
→ A 13 – 17  
→ A 2 – 8

<p>art. no.</p> <p><b>ICK LED R 40 x 10 G</b> WLF ... D 40</p>		
<p>art. no.</p> <p><b>ICK LED R 40 x 27</b> WLF ... D 40</p>		<p><math>R_{th} = 9,41 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 40 x 27 G</b> WLF ... D 40</p>		
<p>art. no.</p> <p><b>ICK LED R 45,7 x 16,5</b> WLF ... D 45</p>		<p><math>R_{th} = 10,46 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 45,7 x 16,5 G</b> WLF ... D 45</p>		
<p>art. no.</p> <p><b>ICK LED R 50 x 10</b> WLF ... D 50</p>		<p><math>R_{th} = 10,57 \text{ K/W}</math></p>

## Heatsinks for LEDs

<p>art. no.</p> <p><b>ICK LED R 50 x 10 G</b> WLF ... D 50</p>		
<p>art. no.</p> <p><b>ICK LED R 50,8 x 16,5</b> WLF ... D 50</p>		<p><math>R_{th} = 10,17 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 50,8 x 16,5 G</b> WLF ... D 50</p>		
<p>art. no.</p> <p><b>ICK LED R 54 x 20</b> WLF ... D 54</p>		<p><math>R_{th} = 9,48 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 54 x 20 G</b> WLF ... D 54</p>		
<p>art. no.</p> <p><b>ICK LED R 66 x 40</b> WLF ... D 66</p>		<p><math>R_{th} = 3,2 \text{ K/W}</math></p>

**B 39**

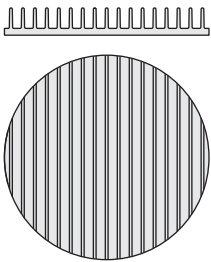
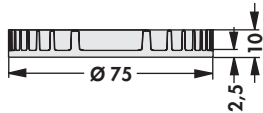
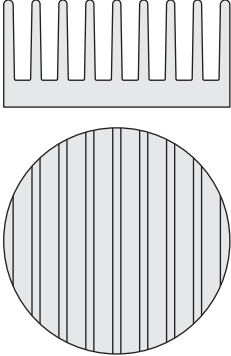
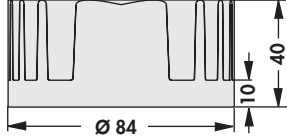
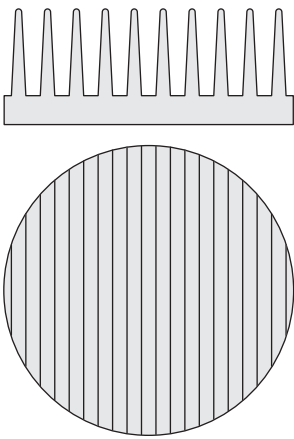
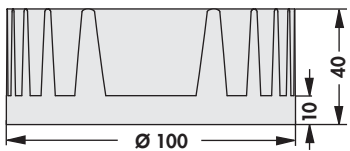
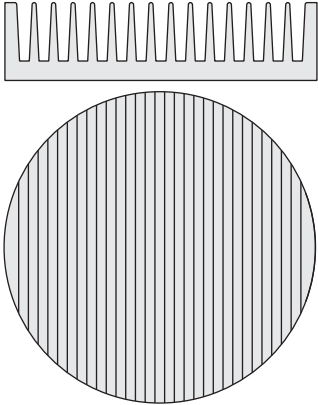
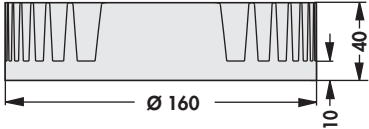
Pin heatsinks Ø  
Mounts  
Thermally conductive foil  
Thermal conductive paste

→ B 29 – 33  
→ E 44 – 48  
→ E 5 – 15  
→ E 21 – 22

Thermal conductive glue  
Hole pattern  
Heatsink profile-overview  
Technical introduction

→ E 23 – 24  
→ A 21  
→ A 13 – 17  
→ A 2 – 8

Heatsinks for LEDs

<p>art. no.</p> <p><b>ICK LED R 75 x 10</b> WLF ... D 75</p>		 <p><math>R_{th} = 5,2 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 84 x 40</b> WLF ... D 84</p>		 <p><math>R_{th} = 2,5 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 100 x 40</b> WLF ... D 100</p>		 <p><math>R_{th} = 2 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>ICK LED R 160 x 40</b> WLF ... D 160</p>		 <p><math>R_{th} = 1,4 \text{ K/W}</math></p>

Heatsinks for LEDs

art. no.		
<b>ICK LED R 200 x 40</b> WLF ... D 200		<b>R<sub>th</sub> = 1 K/W</b>

- A
- B
- C
- D
- E
- F
- G
- H
- I
- K
- L
- M
- N

**B 41**

Pin heatsinks Ø  
Mounts  
Thermally conductive foil  
Thermal conductive paste

→ B 29 – 33  
→ E 44 – 48  
→ E 5 – 15  
→ E 21 – 22

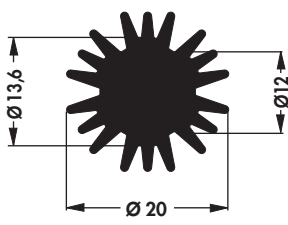
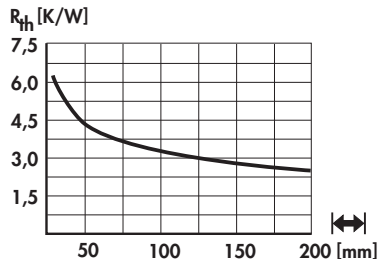
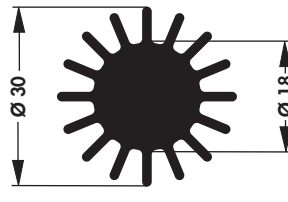
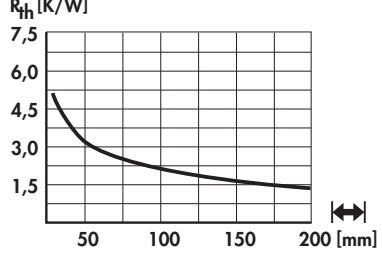
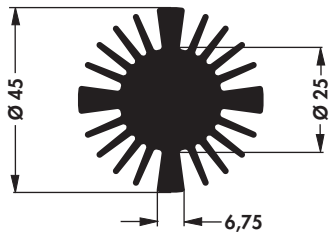
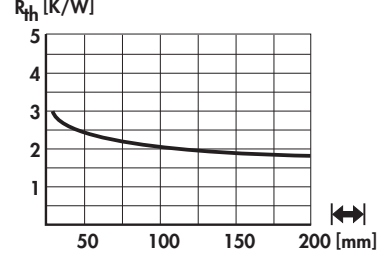

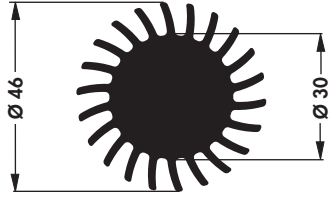
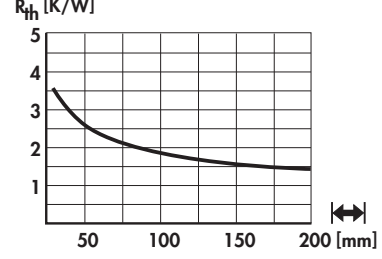
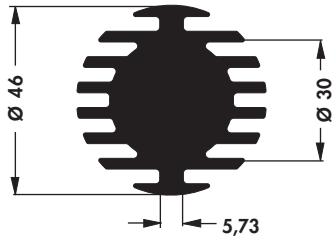
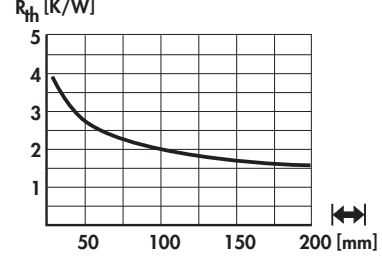

Thermal conductive glue  
Hole pattern  
Heatsink profile-overview  
Technical introduction

→ E 23 – 24  
→ A 21  
→ A 13 – 17  
→ A 2 – 8



## Heatsinks for LEDs

- special design, surfaces and modification to customer specification on request
- up from a profile length of 25 mm: optional adapter plate **LA LED 68 ...** → B 50 suitable for LED modules:  
Bridgelux Vero, Citizen CitiLED, Cree XLamp, Edison Edilex, GE Infusion, Luga Shop und Industrial, Lustrous Lustron, Megaman Teco, Osram PrevaLED und Soleriq, Philips Fortimo und Luxeon, Prolight Opto, Sharp Mega Zenigata, Toshiba E-Core, Tridonic Stark, Vexica Lumaera, Vossloh Schwabe

<b>art. no.</b>          <b>SK 585 ...</b>			
<b>art. no.</b>          <b>SK 620 ...</b>			
<b>art. no.</b>          <b>SK 618 ...</b>			
<b>please indicate:</b> ...  10 15 20 25 37.5 50 1000 mm			
<b>surface:</b> black anodised			
<b>art. no.</b>          <b>SK 619 ...</b>			
<b>art. no.</b>          <b>SK 598 ...</b>			
<b>please indicate:</b> ...  10 15 20 25 37.5 50 1000 mm			<b>... adapter (optional)</b> AD = adapter plate
<b>surface:</b> black anodised			

Pin heatsinks Ø  
Hole pattern  
Special heatsink design  
Thermal conductive paste

→ B 29 – 33 Mounts  
→ A 21 Thermally conductive foil  
→ A 137 – 138 Thermal conductive glue  
→ E 21 – 22 Technical introduction

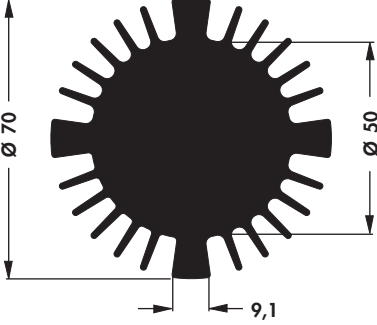
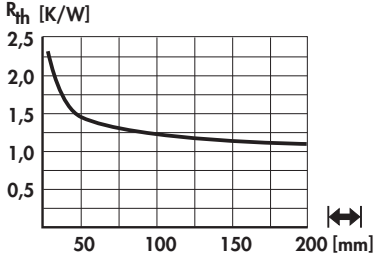

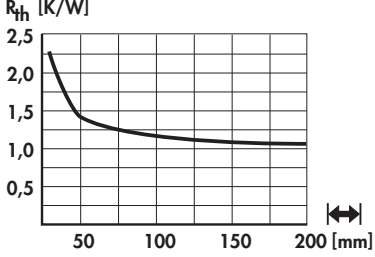
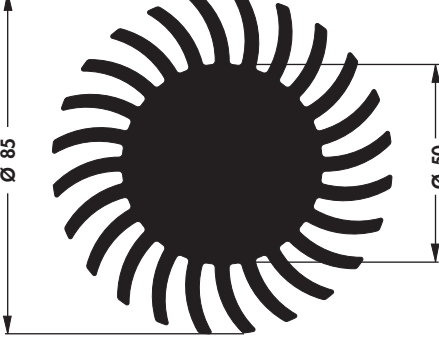
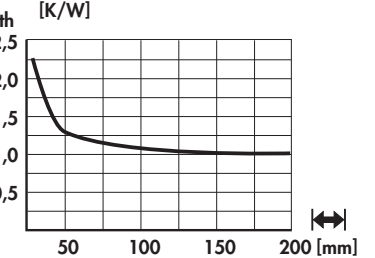

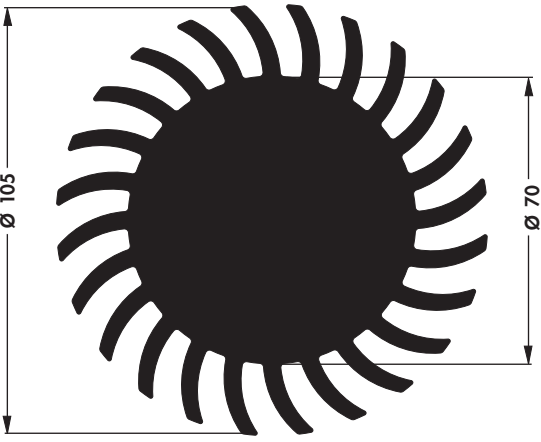
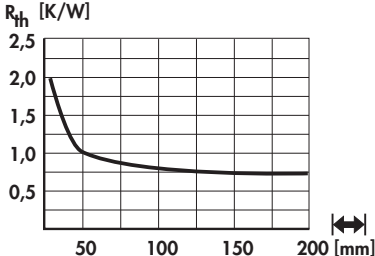

→ E 44 – 48  
→ E 5 – 15  
→ E 23 – 24  
→ A 2 – 8

**B 42**

A  
B  
C  
D  
E  
F  
G  
H  
I  
K  
L  
M  
N

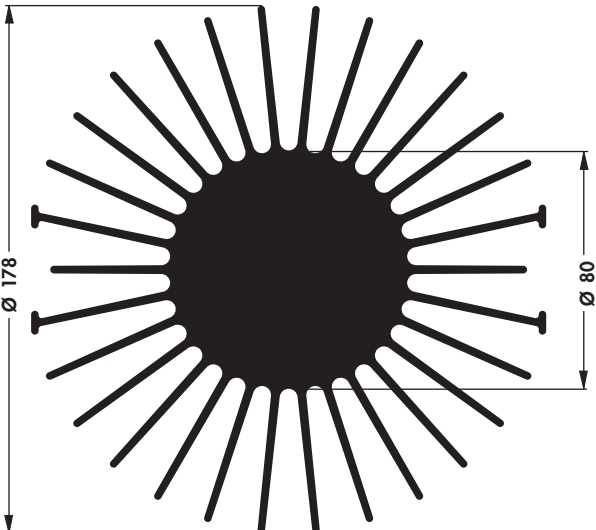
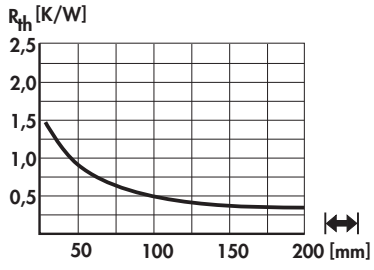

## Heatsinks for LEDs

<b>art. no.</b>   <b>SK 602 ...</b>		
<b>art. no.</b>   <b>SK 577 ...</b>		
<b>art. no.</b>   <b>SK 46 ...</b>		
<b>art. no.</b>   <b>SK 578 ...</b>		
<b>art. no.</b>   <b>SK 569 ...</b>		
<b>please indicate:</b> ...  10 15 20 25 37.5 50 1000 mm		<b>... adapter (optional)</b> <b>AD = adapter plate</b>
<b>surface:</b>		black anodised

<b>art. no.</b>          <b>SK 570 ...</b>		
<b>art. no.</b>          <b>SK 571 ...</b>		
<b>art. no.</b>          <b>SK 572 ...</b>		
<b>please indicate:</b> ...  10 15 20 25 37.5 50 1000 mm <span style="float: right;"><b>... adapter (optional)</b> AD = adapter plate</span>		
<b>surface:</b> black anodised		
<b>art. no.</b>          <b>SK 584 ...</b>		
<b>please indicate:</b> ...  10 15 20 25 37.5 50 1000 mm		
<b>surface:</b> black anodised		

Heatsinks for LEDs

<p>art. no.</p> <p><b>SK 615 ...</b></p>		
<p>art. no.</p> <p><b>SK 599 ...</b></p>		
<p>art. no.</p> <p><b>SK 592 ...</b></p>		
<p>please indicate: ... <math>\left[ \right]</math></p> <p>10 15 20 25 37.5 50 75 100 150 1000 mm</p>		
<p>surface: black anodised</p>		

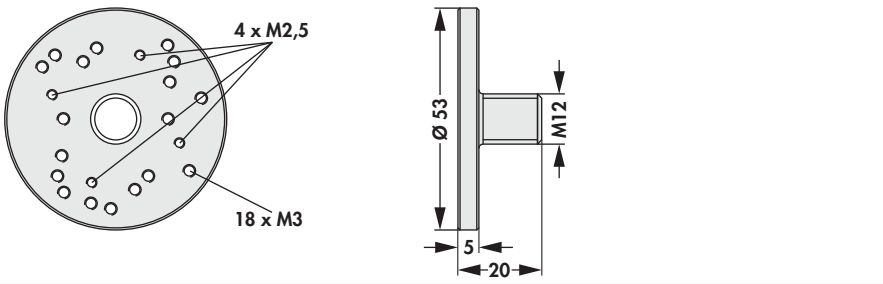
<b>art. no.</b>		
<b>SK 590 ...</b>		
<b>please indicate:</b>	...  10 15 20 25 37.5 50 75 100 150 1000 mm	
<b>surface:</b>	black anodised	


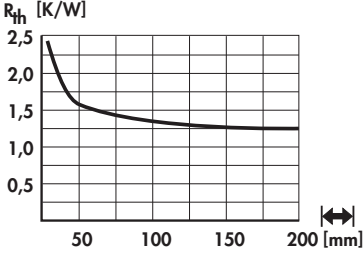

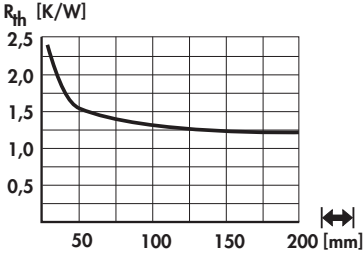
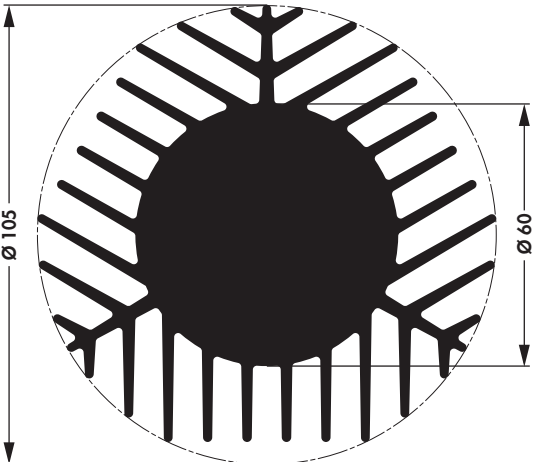
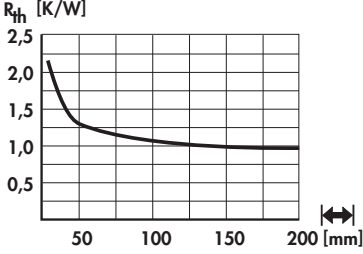
A  
B  
C  
D  
E  
F  
G  
H  
I  
K  
L  
M  
N

## Heatsinks for LEDs

– adapter plate suitable for LED modules:

Bridgelux Vero, Citizen CitiLED, Cree XLamp, Edison Edilex, GE Infusion, Luga Shop und Industrial, Lustrous Lustron, Megaman Te-co, Osram PrevaLED und Soleriq, Philips Fortimo und Luxeon, Prolight Opto, Sharp Mega Zenigata, Toshiba E-Core, Tridonic Stark, Vexica Lumaera, Vossloh Schwabe

<b>art. no.</b>		
<b>AD LED 53</b>		
<b>surface:</b>	black anodised	

<p>art. no.</p> <p>SK 658 ...</p>		
<p>art. no.</p> <p>SK 659 ...</p>		
<p>please indicate: ... <math>\left[ \text{mm} \right]</math>                  10 15 20 25 37.5 50 1000 mm</p>		
<p>surface: black anodised</p>		
<p>art. no.</p> <p>SK 660 ...</p>		
<p>please indicate: ... <math>\left[ \text{mm} \right]</math>                  10 15 20 25 37.5 50 75 100 150 1000 mm</p>		
<p>surface: black anodised</p>		

Heatsinks for LEDs

- suitable for LEDs: Osram PrevaLED, Philips Lumileds and Luxeon, Prolight Opto, Sharp Mega Zenigata, Vossloh Schwabe Luga Shop and Industrial as well as all further Zhaga compliant LED modules with a mounting hole spacing of 35 mm
- special designs, surfaces and modifications to customer specification on request

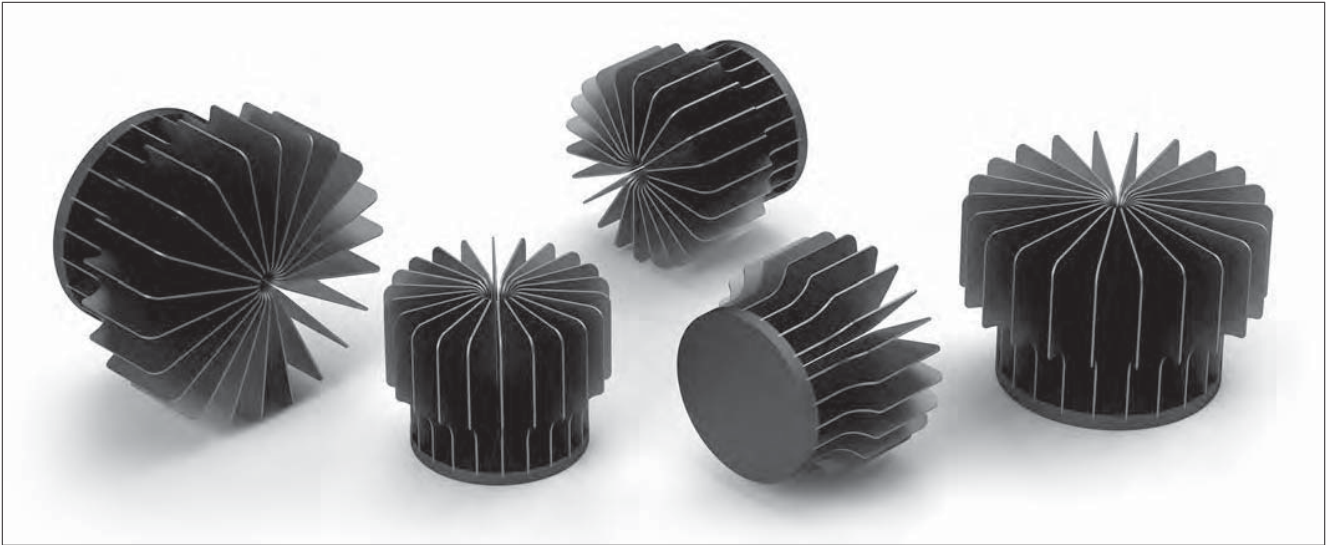
<b>art. no.</b>		
SK 642 ...		
<b>please indicate:</b>	... <b>10 15 20 25 37.5 50 75 100 150 1000 mm</b>	
<b>surface:</b>	black anodised	

- suitable for LEDs: Bridgelux Vero, Citizen CitiLED, Cree XLamp, Edison Edilex, GE Infusion, Megaman Teco, Osram PrevaLED and Soleriq, Philips Fortimo, Lumileds and Luxeon, Prolight Opto, Sharp Mega Zenigata, Toshiba E-Core, Tridonic Stark, Vexica Lumaera, Vossloh Schwabe Luga Shop and Industrial, Zhaga
- fixing screws for LED modules and holder systems on request
- special designs, surfaces and modifications to customer specification on request

<b>art. no.</b>		
SK 643 ...		
<b>please indicate:</b>	... <b>10 15 20 25 37.5 50 75 100 150 1000 mm</b>	
<b>surface:</b>	black anodised	

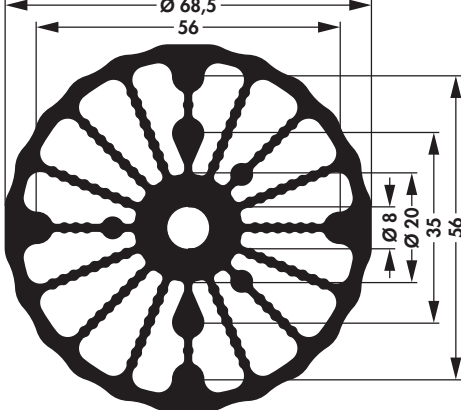
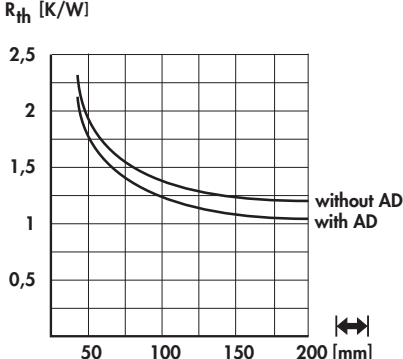


Heatsinks for LED

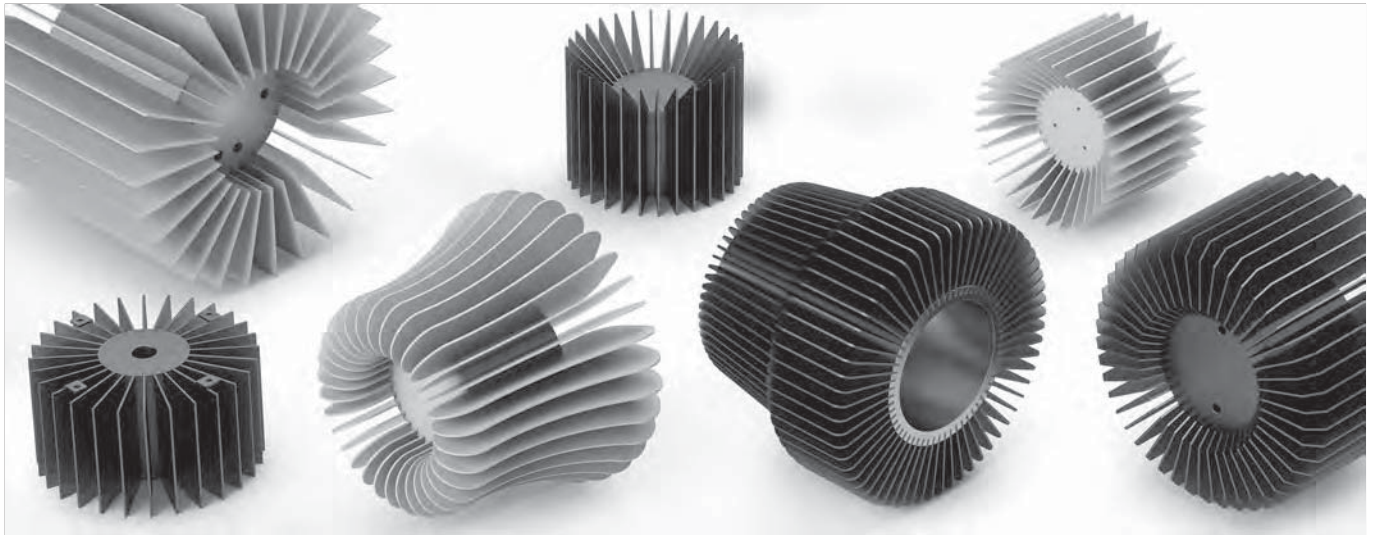


- particularly light and compact conception made of aluminium
- thermotechnically optimally fitted lamellas
- precise milled flat LED mounting surface
- adaptable to all common LED modules and sizes
- bottom plate for heat dissipation made of copper upon request
- customised designs and modifications acc. to drawing

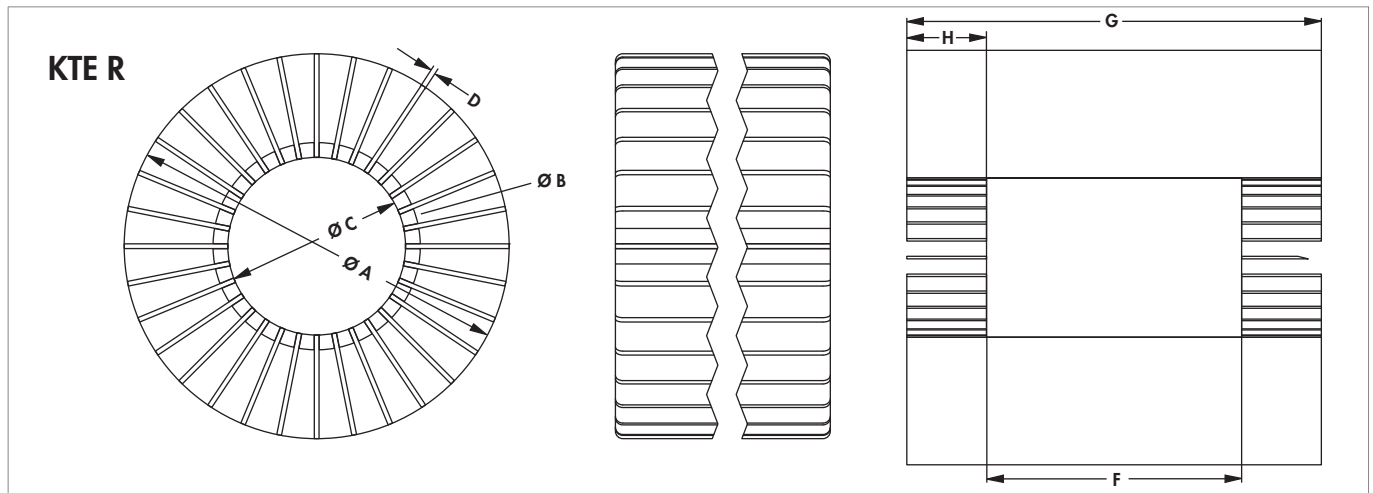
<p>art. no.</p> <p><b>SK LED R 65</b> weight: 132g</p>		<p><math>R_{th} = 2,1 \text{ K/W}</math></p>
<p>art. no.</p> <p><b>SK LED R 80</b> weight: 207g</p>		<p><math>R_{th} = 1,35 \text{ K/W}</math></p>
<p><b>surface:</b></p>		<p>black anodised</p>
<p><b>material:</b></p>		<p>aluminium bottom plate: EN AW 6060; sheet metal: AlMg3</p>
<p><b>number of plates:</b></p>		<p>22</p>

<p>art. no.</p> <p>SK LED 4 ...</p>			
<p>please indicate:</p>	<p>... <math>\longleftrightarrow</math> 50 75 100 150 1000 mm</p>	<p>... surface SA = black anodised ME = natural colour anodised</p>	<p>... adapter (optional) AD = adapter plate</p>

## LED fin cooler KTE R customised



- individual LED heatsinks acc. to customer's requests
- adaptable to all common LED modules and sizes
- integration possibility of reflectors or fans by using special sheet metal design
- entry core for heat dissipation made of copper upon request
- other dimensions, sheet metal geometries, surfaces and mechanical machinings upon request



### possible dimensions:

dim. [mm]								
A	B	C	D	E	F	G	H	
B + 20 to 200	35	30	0.8	32	max. 400	max. 800	max. 200	
	40	35	1	36				
	55	50	1.5	50				
	80	75	2	72				
	90	85		84				
	100	95		92				

E max. number of grooves at D = 0.8 mm

### please indicate with your order:

dim. [mm]								
A	B	C	D	E	F	G	H	

please indicate: ... surface  
 SA = black anodised  
 ME = clear anodised

material: aluminium

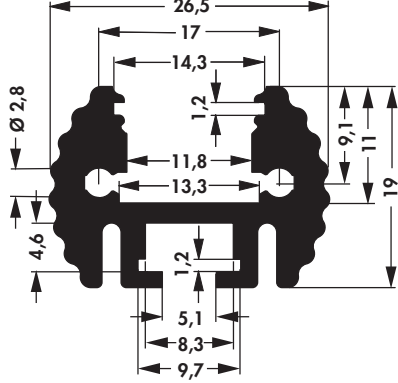
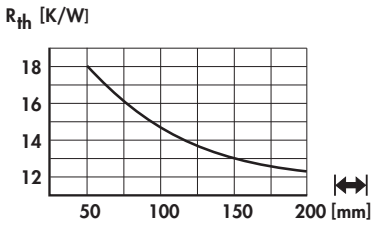
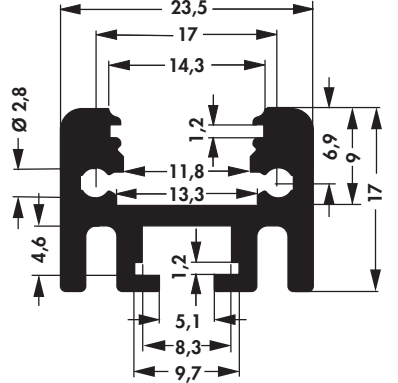
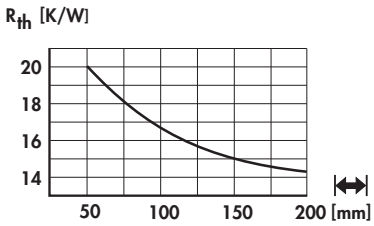
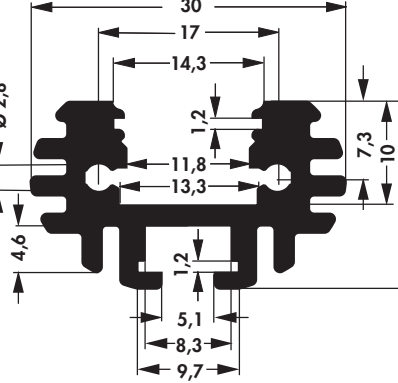
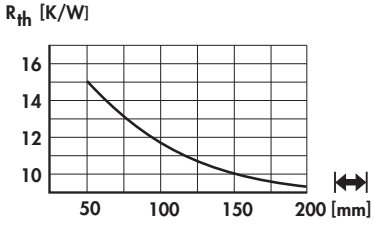
## Heatsinks for LEDs

- heatsink specially made for flexible and fixed LED Line Modules
- insertion possibility of metal sheets and sheets of Plexiglas
- customer specified designs, lengths and treatments upon request

<p>art. no.</p> <p><b>SK LED 1</b></p>		
<p>art. no.</p> <p><b>SK LED 2</b></p>		
<p>art. no.</p> <p><b>SK LED 3</b></p>		
<p>please indicate: ...  50 75 100 150 1000 mm</p>		<p>... surface  <b>SA = black anodised</b>  <b>ME = clear anodised</b></p>

## Heatsinks for LEDs

- heatsink specially made for flexible and fixed LED Line Modules
- insertion possibility of metal sheets and sheets of Plexiglas
- complete case with cover panels → **G LED ...** case catalogue **f.case**
- customer specified designs, lengths and treatments upon request

<b>art. no.</b>          <b>SK LED 5</b>		
<b>art. no.</b>          <b>SK LED 6</b>		
<b>art. no.</b>          <b>SK LED 7</b>		
<p><b>please indicate:</b> ... <math>\longleftrightarrow</math> <b>50 75 100 150 1000 mm</b></p> <p><b>... surface</b>  <b>SA = black anodised</b>  <b>ME = natural colour anodised</b></p>		

A

B

C

D

E

F

G

H

I


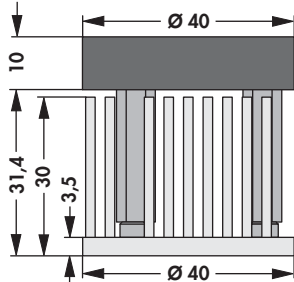
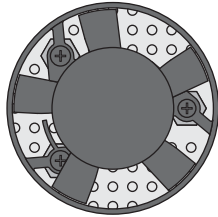

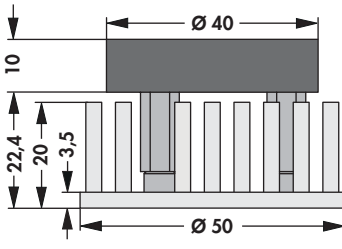
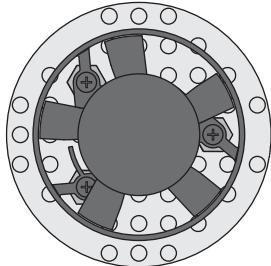

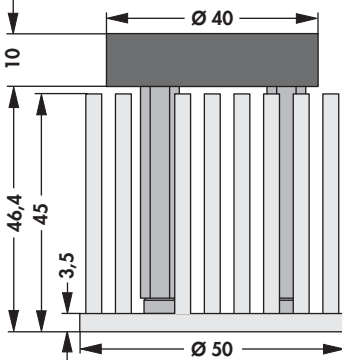
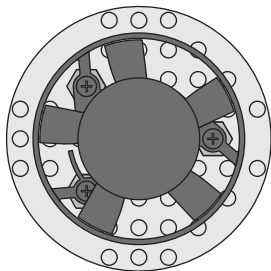
K

L

M

N

## Active heat dissipation of LEDs

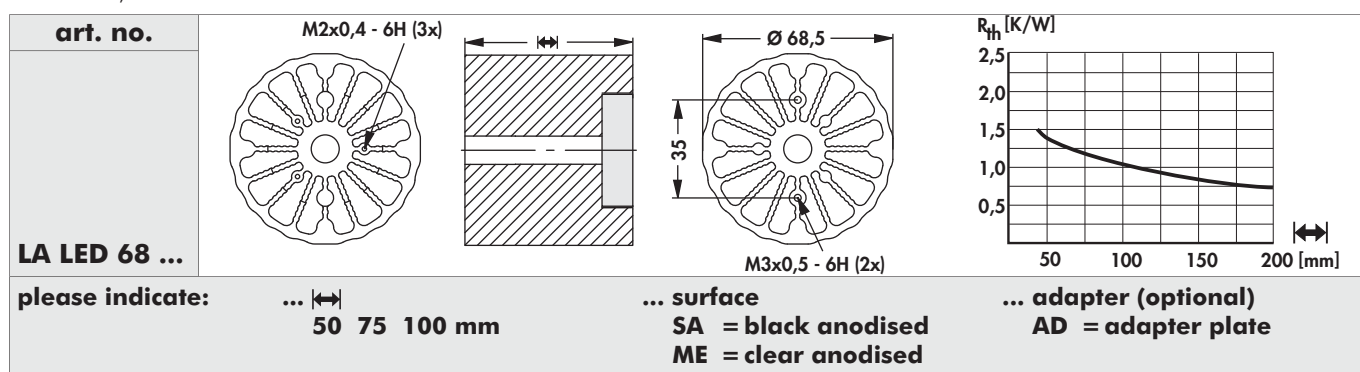
		
<b>art. no.</b> <b>LA LED 40 x 30</b>	$R_{th}$ [K/W] 1.4	
		
<b>art. no.</b> <b>LA LED 50 x 20</b>	$R_{th}$ [K/W] 1.25	
		
<b>art. no.</b> <b>LA LED 50 x 45</b>	$R_{th}$ [K/W] 0.9	

### Technical data of the fans

	<b>LF 40B12</b>
<b>circuit voltage</b>	12 V
<b>bearing type</b>	two-way plain bearing
<b>cur. consumpt.</b>	50 mA
<b>max. initial current</b>	160 mA
<b>max. volume flow</b>	157 l/min - 9.4 m <sup>3</sup> /h
<b>max. static pressure</b>	3.4 mmH <sub>2</sub> O - 33 Pa
<b>noise level</b>	26 dB(A), 1 m lateral
<b>temperature range</b>	-20°C... +60°C
<b>failure rate (L<sub>10</sub>)</b>	60,000 h
<b>MTBF</b>	1,900,000 h (20°C)
<b>Type rotor speed</b>	6,600 min <sup>-1</sup>
<b>weight</b>	10 g



- active heat dissipation of LED modules
- Zhaga compliant mounting possibility
- integrated low noise fan
- optional adapter plate suitable for LED modules:  
Bridgelux Vero, Citizen CitiLED, Cree XLamp, Edison Edilex, GE Infusion, Luga Shop und Industrial, Lustrous Lustron, Megaman Teco, Osram PrevaLED und Soleriq, Philips Fortimo und Luxeon, Prolight Opto, Sharp Mega Zenigata, Toshiba E-Core, Tridonic Stark, Vexica Lumaera, Vossloh Schwabe

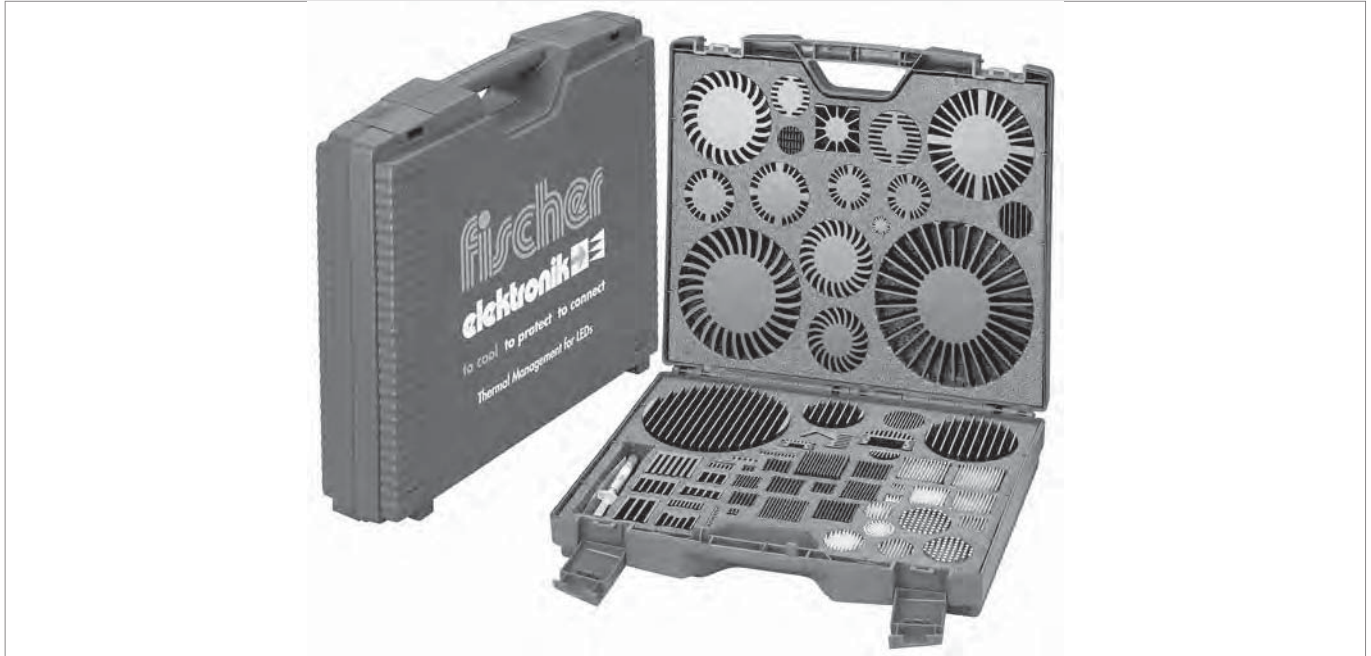


### Technical data of the fans

	<b>LF 40B12</b>
<b>circuit voltage</b>	12 V
<b>bearing type</b>	two-way plain bearing
<b>cur. consumpt.</b>	50 mA
<b>max. iinitial current</b>	160 mA
<b>max. volume flow</b>	157 l/min - 9.4 m <sup>3</sup> /h
<b>max. static pressure</b>	3.4 mmH <sub>2</sub> O - 33 Pa
<b>noise level</b>	26 dB(A), 1 m lateral
<b>temperature range</b>	-20°C... +60°C
<b>failure rate (L<sub>10</sub>)</b>	60,000 h
<b>MTBF</b>	1,900,000 h (20°C)
<b>Type rotor speed</b>	6,600 min <sup>-1</sup>
<b>weight</b>	10 g

**Sample box LED Heatsinks**

- Sample box for verification of the thermal management for LEDs
- Contains a choice of different extruded heatsinks, LED extruded heatsinks in round design, LED pin heatsinks and extruded profiles for LED-Line modules
- for thermal contacting or mounting of LED a high-performance thermal conductive graphite foil is also enclosed (**WLFG**, sample strips 25x150mm), a high-performance thermal conductive (silicone-free) ceramic-filled thermal conductive paste (**WLPK**, syringe), a double-sided sticky thermal conductive foil (**WLFT 404**, sample strips 25x150mm) and a thermal conductive epoxy based two-component adhesive (**WLK DK**, syringe)



**art. no.**  
**SK LED BOX 1**

**B 51**

**Pin heatsinks Ø**  
**Hole pattern**  
**Special heatsink design**  
**Thermal conductive paste**

→ **B 29 – 33**  
→ **A 21**  
→ **A 137 – 138**  
→ **E 21 – 22**

**Mounts**  
**Thermally conductive foil**  
**Processor overview**  
**Technical introduction**

→ **E 44 – 48**  
→ **E 5 – 15**  
→ **B 2 – 10**  
→ **A 2 – 8**