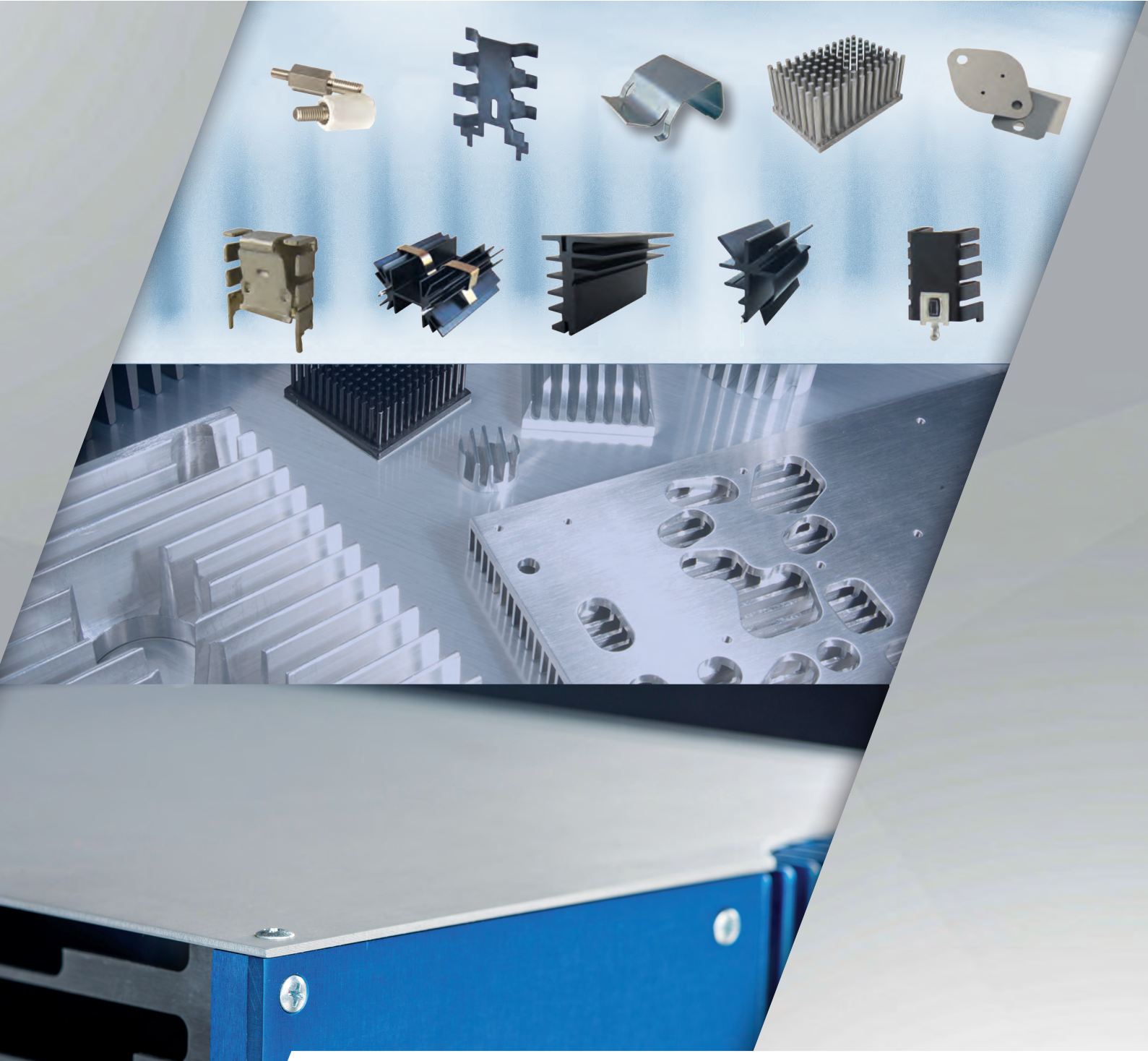
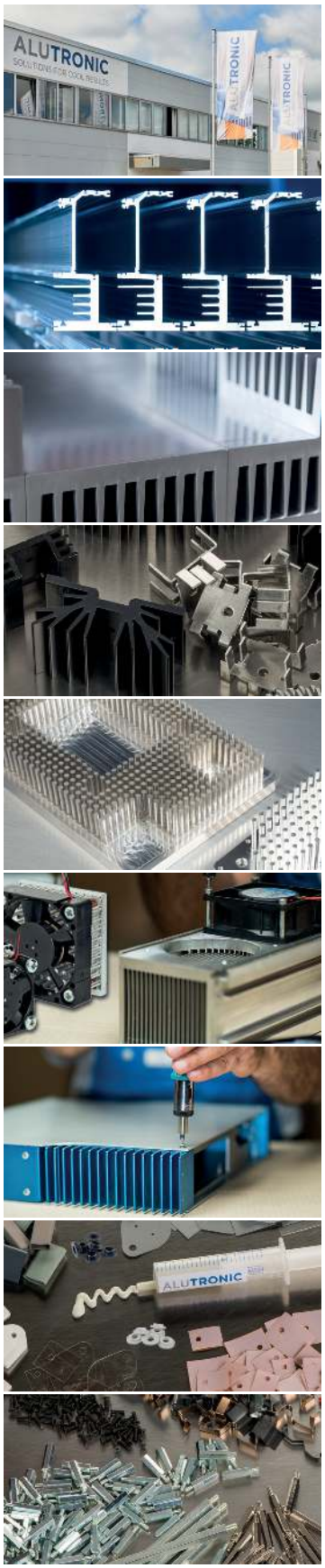


ALUTRONIC

SOLUTIONS FOR COOL RESULTS

Heat Sinks + Casings
Heat Sink Systems + Accessories

Table of Content



Since 1977

ALUTRONIC

SOLUTIONS FOR COOL RESULTS

-Experienced
-Fast
-Competent
-Reliable

We are constantly supplementing our product range; please also visit our website.
If you are unable to find the solution you are looking for please feel free to call us up.

familiy run

team working

fast + accurate

semi- automated

200+ extrusions

design support

www.tuv.com
TÜVRheinland
ISO 9001:2015
ID:9105026417

ISO 9001

managed quality

service oriented

constant staff training

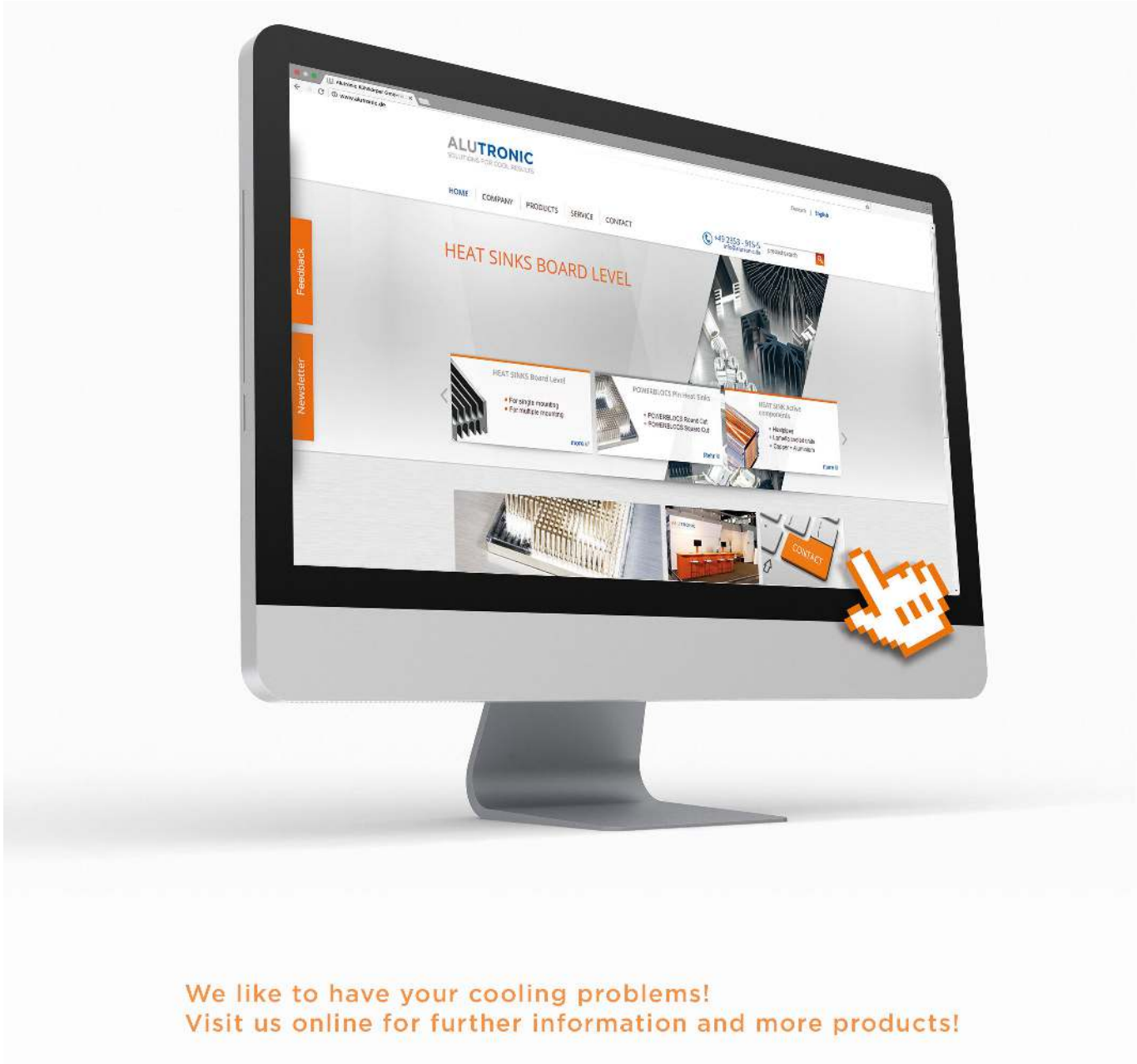
EMPOLOGOMA
Supporting Kids in Uganda

socially responsible

ClimatePartner

climate neutral

Table of Content



We like to have your cooling problems!
Visit us online for further information and more products!

Our services

A heat sink is rarely the component to which the other components in the system are adapted. Usually, it is the other way around. There are several requirements to the heat sink:

- What is the needed specific thermal resistance?
- How much design space does the system offer?
- Is there a standard heat sink extrusion or do you need a customised solution?
- And much more...

Alutronic supports you all the way to the standard product that is right for you or to your own, customised solution; face to face or on the telephone.

Our in-house capabilities are supplemented by a wide-ranging professional network in the field of surface treatment, ventilation, housings and EMC protection.

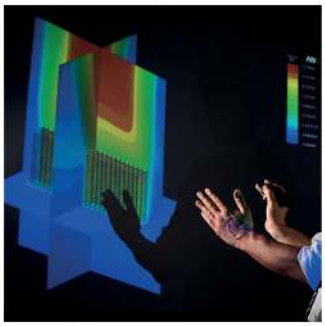

milling + drilling


anodising


sub-assembly


consulting

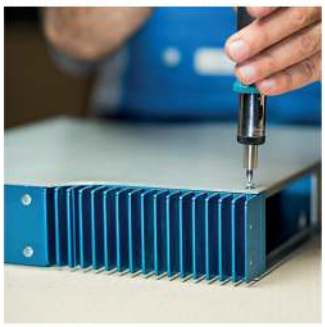

logistics solutions


thermal simulation


pre-assembly

custom cut foils


consultation on site


rapid prototyping


RthK-calculator online


extrusion-filter online

Metal Processing

-Modern, efficient CNC machinery in operation

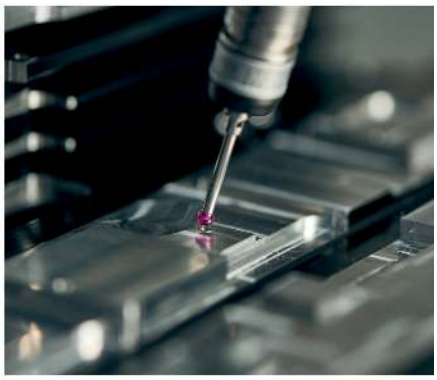
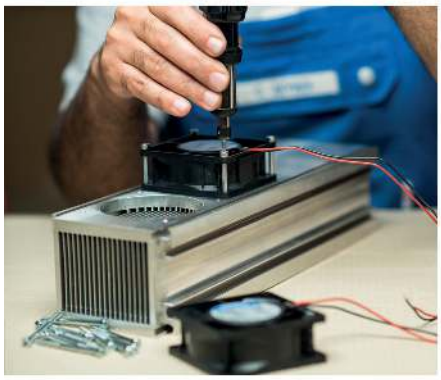
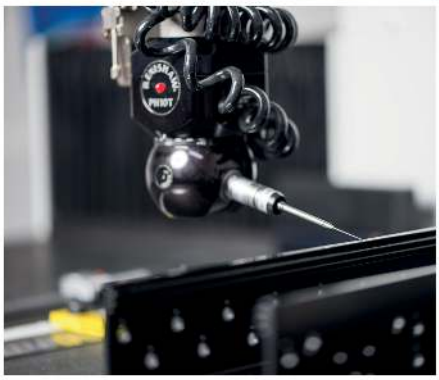
-Experienced workforce for aluminium machining

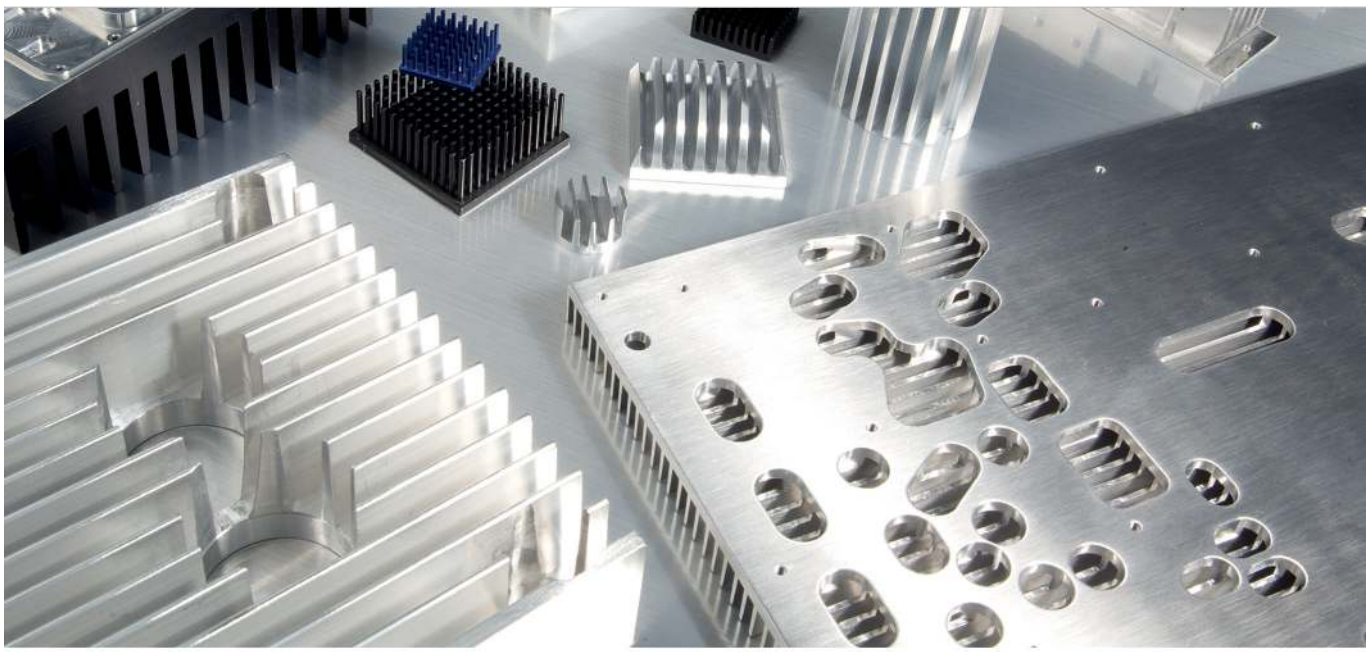
-Constant manufacturing precision

-Effective production planning

-Economical manufacturer of your products - starting with a batch size of 1!





Pre-Assembly

For further integration of the heat sink into your application, Alutronic can assemble mechanical components for you on request.

Assembly parts: Spacer bolts, clips, screws, fans, threaded inserts, heat conducting materials, springs etc.

Anodising

An anodised coating offers your components surface protection, improves heat radiation, electric insulation and provides decorative solutions.

We treat surfaces since 1989 with:

- Safety for human beings and the environment
- Quality by experience + competence
- Speed by automation and efficient processes

We will convince you with:

- 30 years of experience in anodisation
- Fully automatic anodising line
- Most modern water treatment plant
- In-house frame construction
- Express anodising service

For you, we produce:

- Anodised products up to 1700 mm length
- Anodised layer thickness up to 25 µm
- Chrome-plating in accordance with RoHS
- Anodising only for your aluminium parts

-Very wide product range

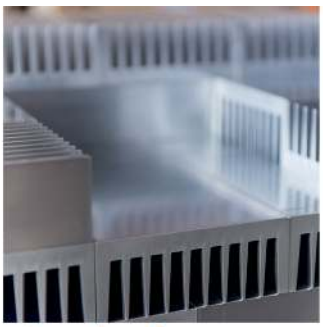
-Well sorted stock

-Continuous expansion of our variety of articles

-Logistic services such as buffer storage, dual-use and recyclable packaging

-Economical manufacturer of your products- starting with batch size 1!


customized


standard

casings


powerblocs

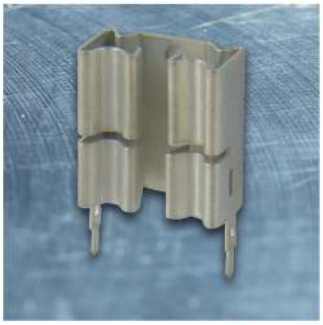
heat sink systems


silicone washers

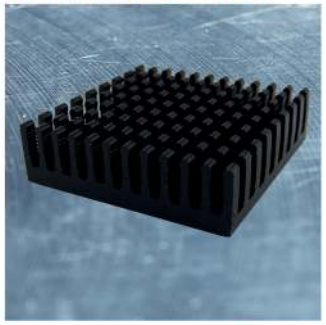

distance bolts


mounting clips


screw-on heat sinks


solderable heat sinks


plug-on heat sinks


adhesive heat sinks

Task and purpose of use of a heat sink

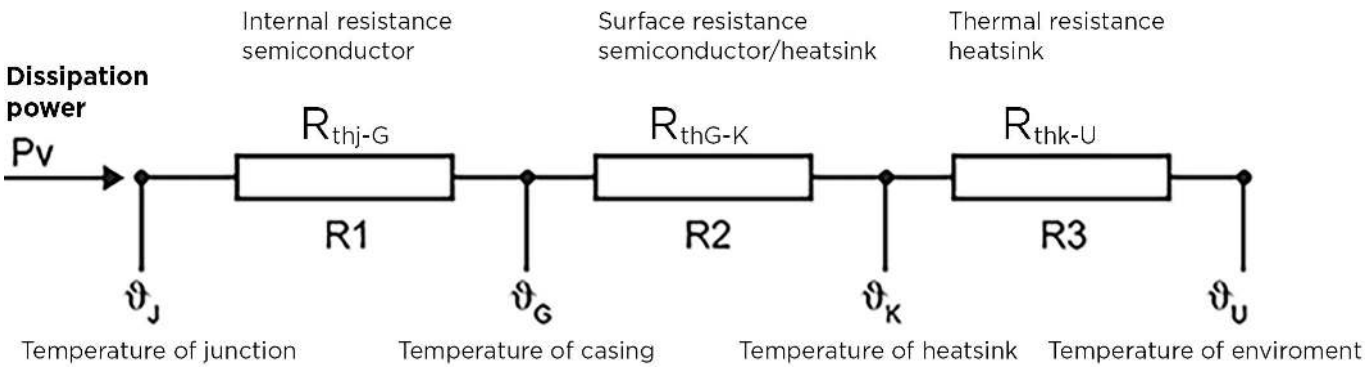
At the junction of semiconductor elements and resistances, the electrical power loss (Pv) gets converted to heat (Q) and causes a rise in temperature. The temperature of the junction (ϑJ) should not exceed a maximum value in order to ensure stable operation and to prevent destruction of the semiconductor.
You can refer to the data sheets of the semiconductor manufacturer for this maximum permissible junction temperature. If the heat occurring cannot be dissipated via the semiconductor housing to the surrounding medium, which is air in most cases, the component must be mounted on a heat sink. Thus, the effective housing surface area for dissipating the heat gets enlarged.
This leads to enhanced reliability and service life of the semiconductor or the entire circuit. A heat sink consists of materials with good thermal conductivity, in most cases, an aluminium alloy with a geometric structure and surface characteristic well adapted and suitable for the application.
The materials used are:
AlMgSi 0.5 F22 for aluminium extruded profiles
– AlSi8Cu3 for aluminium die-cast parts
– Al99.9 hh for aluminium band material

Principle of operation of a heat sink - heat dissipation and types of convection

The transport of heat from the heat source (e.g. junction of the semiconductor) via the heat sink to the surrounding medium is composed of:
the heat transfer from the heat source to the heat sink
– the heat conduction within the heat sink to the surface of the heat sink
– the heat transfer from the surface by free or forced convection to the surrounding medium
– the heat radiation depending on the surface characteristic

The resistance to heat and the thermal equivalent circuit picture

The thermal resistance is defined as the ratio of the temperature rise with power feed and is used as a measure for the heat dissipation capacity of the heat sinks and their comparability. The lower the thermal resistance, the less is the expected temperature rise and the "better" is the heat sink. The thermal resistance is specified in K/W (Kelvin/Watt). Heat sinks and semiconductors form a functional unit, which can be represented as a thermal equivalent circuit in electrical engineering similar to Ohm's law:



Breakdown in the following sections:

- Feed of the power loss (Pv) is converted to heat flow (Q)
- Heat conduction from the junction to the assembly surface of the component
- Heat dissipation by the heat sink to the surrounding medium

RthK = Thermal resistance of the heat sink in K/W

ϑjmax = Maximum junction temperature of the semiconductor in °C (from the data sheet)

ϑU = Ambient temperature in °C

Pv = the heat source of the power loss fed in W

RthjG = Internal resistance, junction to the housing of the semiconductor in K/W

RthGK = Thermal transfer resistance to the assembly surfaces in K/W (can be reduced to a minimum value with the help of heat conducting paste)
For insulated assembly, the specific thermal resistances of the insulating materials must be taken into consideration.

$\Delta\vartheta$ = Temperature difference in K
Each heat sink with a smaller thermal resistance than that calculated is suitable for this use.
Calculation of the required thermal resistance with the given loss of power and the permissible temperature gradient:

$$R_{thK} = \frac{\vartheta_{jmax} - \vartheta_j}{P_V} - (R_{thjG} + R_{thGK}) = \frac{\Delta\vartheta}{P_V} - (R_{thjG} + R_{thGK})$$

Each heat sink with a smaller thermal resistance than that calculated is suitable for this use.

The measurement and measuring conditions for the thermal resistance

All values specified in the catalogue have been measured at the premises of ALUTRONIC under the following conditions:Natural convection
- Heat sink matt black anodised
- Vertical arrangement of the fins
- One heat source in the centre of the heat sink (unless specified otherwise)

- Temperature measurement between the semiconductor and heat sink assembly surface, vertical arrangement of the fins
- Use of heat conducting paste
- Measurement of the ambient temperature at 1 m distance from the measuring point

The measured values are specified as temperature increase depending on the power fed with different test lengths. The thermal resistances for the associated values of power are compiled based on calculation from this in the table alongside. These tables indicate the dependence of the thermal resistance on the power fed and the length sections. From this, for example, you can derive the length from which a certain cooling profile can still be used meaningfully. In addition, the weight in gm is specified.

Impact of the thermal transfer resistance

Special attention must be paid to the thermal contact between the semiconductor housing and the assembly surface of the heat sink. It is dependent on the surface quality (depth of roughness), evenness, contact pressure and the insulating and filling materials used.

Impact of the surface colour on a heat sink

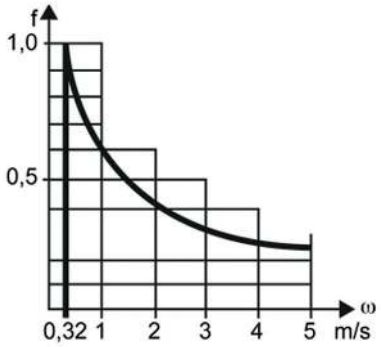
The impact of the radiation component (black surface) of a heat sink on its thermal resistance is often incorrectly estimated. You cannot derive a general rule. A heat sink with fins radiates heat primarily only via its contour surface.
The gaps between the fins are too narrow in most cases than the radiation penetrating outside and exchange of radiation only takes place between the fins surfaces lying opposite to one another. Thus, the radiation component does not rise proportionally with the surface area available for convection.
The percentage radiation component of the heat dissipation is significantly higher with a simple cooling surface than with a completely finned heat sink. The prevalent heat sinks are optimised for convection and not for radiation.
The radiation component is highly temperature-dependent and increases with the 4th exponent. If the surface temperature is kept low, e.g. with the help of external ventilation, because the heat keeps getting dissipated, then the radiation component can be ignored.
The thermally insulating anodising layer can rather deteriorate the transfer resistance. With external ventilation, especially for powerful external ventilation, it is more purposeful to have an uncoated or chrome-plated heat sink.
A black heat sink can also absorb more radiated heat from its environment.
If, in fact, there are components anywhere in the vicinity that may have higher temperatures than the heat sink, and if these have a larger radiating surface, then the effect may also reverse and the heat sink gets heated up additionally (radiation exchange).
A black anodised heat sink, from the thermal perspective, is meaningful in most cases for:

- self convection and higher surface temperatures
- No other warmer radiation bodies in the vicinity
- With higher external thermal resistance (insulation of the anodised layer is low compared to the radiation component)

Moreover, of course, the surface protection must be observed. With a chrome-plated surface, the electrical conductivity is maintained and, at the same time, surface protection is present. This is e.g. especially important for housings or housing parts, which have to meet EMC requirements.

Impact of the convection properties

The factor f gives the ratio of the thermal resistance with self convection to the thermal resistance with the desired air speed.



With the help of external ventilation, the thermal resistance of a heat sink can be reduced. If the thermal resistance for free convection is known, then for a certain length of the heat sink over which the flow occurs with unchanged temperature gradient the thermal resistance can be calculated for different flow speeds.
The following diagram is applicable to a heat sink length of 100 mm and a temperature gradient of 80 K:

Design aids for the conception of a new HEAT SINK

A new instrument for optimising heat sinks and also complete cooling systems is thermographic computer simulation.
With this you can also optimise and implement customised special profiles with respect to thermal characteristics within the shortest period of time. Here, too, ALUTRONIC provides its services for solving customised heat-related problems.

Static and dynamic behaviour of a HEAT SINK

The consideration so far is valid for the static steady-state condition.
For the transient behaviour, the corresponding thermal capacities and running times need to be taken into consideration. With load pulses (e.g. when staring up vehicles or lifts), considerable amounts of heat may occur in the shortest period of time that then have to be stored intermediately.
In this case then primarily high thermal capacities with thermal resistances that are as low as possible are necessary. In this case, an aluminium or copper block or even a heat pipe can be used.

Production-related instructions

Press tolerances:
For extruded profiles, the standards DIN 1748 - Part 4 or DIN 17615 - Part 3, DIN ISO 755 - 9 or DIN ISO 12020 - 2 are used as the basis. You need to take these standards into consideration for the dimensions given in the profile drawings.

Machining tolerances:
CNC - Machining is done in accordance with DIN 2768 m.
The depths of roughness are: RZ = 2.5 to 4.0 for non-machined extruded profiles and RZ< 1.5 for plane milled surfaces. The evenness on a surface of 100 x 100 mm is 0.5 to 1.0 mm for non-machined extruded profiles in accordance with DIN and 0.1 mm or better for plane milled surfaces.
Air bubbles (blow holes or cavities) between the assembly surfaces can be eliminated by using heat conducting paste. As a result, the thermal transfer resistance (RthGK) can be reduced. However, the paste should be applied only as thick as is absolutely necessary (avoiding air bubbles).
The conventional screw assembly at present id often replaced by a more cost-effective spring assembly in conjunction with a clip nut already pulled into the profile.
The contact pressure acts on the correct point of the semiconductor with short assembly times. You can get other machining tolerances on request.
In addition, you need to observe that for certain components special requirements are applicable for the evenness of the surface to be mounted.
In most cases, they are specified by the component manufacturer and are not always covered by the standard tolerances. You need to consult the manufacturer in such cases. In order to meet the requirements, you need to mill the assembly surface plane in most cases.

Similarly, the desired tightening torque must be specified in advance in case of stringent requirements threaded wire inserts are used in the process. Please also note the specifications of your semiconductor manufacturer.
The user is responsible for the use of profile pressed threaded channels. The pressed threads do not contain any thread pitch and thus, they are not compliant with the standard. This pitch is reproduced by offset ridges (fins).

Surface technology:

For surface treatments (anodising, chrome-plating, etc.), unavoidable clamping or contact points occur by holding them in appropriate frames.
In the case of application-based restrictions, coordination for the positioning of clamping points is necessary. Tapped blind holes are made after anodising or be stuffed in contrast to through holes. For visible and decorative parts, the requirements are specified separately.

Hubert Andrejewski
Managing Director / Sales Manager
Tel.: +49 2353 / 915 314
andrejewski@alutronic.de

Martina Oberstadt
Sales Team Manager

Tel.: +49 2353 / 915 315
oberstadt@alutronic.de

Florian Schlachtenrodt
Distributor Support

Tel.: +49 2353 / 915 306
f.schlachtenrodt@alutronic.de

Marcus Opitz
Technical Sales

Tel.: +49 2353 / 915 334
opitz@alutronic.de

Kathrin Solmecke
Customer Support

Tel.: +49 2353 / 915 345
solmecke@alutronic.de

Viktor Balzer
Customer Support/ Quality Claim Manager
Tel.: +49 2353 / 915 318
balzer@alutronic.de

Tim Schlachtenrodt
Managing Director

Tel.: +49 2353 / 915 311
tim.schlachtenrodt@alutronic.de

Thomas Lauff
Anodising Plant Manager + Shipping

Tel.: +49 2353 / 12896
lauff@alutronic.de

Damian Dreimol
Quality Assurance Manager

Tel.: +49 2353 / 915 322
dreimol@alutronic.de

Aileen Schmieder
Quality Management Commissioner
Tel.: +49 2353 / 915 349
schmieder@alutronic.de

Jesus Sanchez - Racero
CNC-Production Manager

Tel.: +49 2353 / 915 360
sanchez@alutronic.de

Thorsten Kaddatz
Purchase Manager

Tel.: +49 2353 / 915 324
kaddatz@alutronic.de

Germany

ALUTRONIC Kühlkörper GmbH & Co KG
Head Office
Auf der Löbke 9-11
D-58553 Halver

Tel.: +49 2353 915 5
Fax: +49 2353 915 333
Mail: info@alutronic.de
Internet: www.alutronic.de

Alutronic Bauelemente GmbH
Mercatorstraße 35
D-21502 Geesthacht

Tel.: +49 4152 888 30
Fax: +49 4152 88 379
Mail: info@alutronic-hamburg.de
Internet: www.alutronic-hamburg.de

Arrow Central Europe GmbH
Frankfurter Straße 211
D-63263 Neu-Isenburg

Internet: www.arroweurope.com

Beckmann Elektronik GmbH
Dieselstr. 7
D-85232 Bergkirchen

Tel.: +49 8131 3118-0
Fax: +49 8131 3118-19
Mail: info@beckmann-elektronik.de
Internet: www.beckmann-elektronik.de

Reichelt Elektronik GmbH & Co. KG
Elektronikring 1
D-26452 Sande

Tel.: +49 4422/955333
Fax: +49 4422 955111
Mail: info@reichelt.de
Internet: www.reichelt.de

Austria

JIC Warenvertriebs-Gesellschaft m.b.H
Theresianumgasse 13
A-1040 Wien

Tel.: +43 1 812 2739
Fax: +43 1 812 1081
Mail: office@jic-trading.com
Internet: www.jic-trading.com

Finland

Q-Flex O.Y.
Poikojankuja 2
FIN-21360 Lieto

Tel.: +35 824 89 45 10
Fax: +35 824 89 45 05
Mail: q-flex@q-flex.fi
Internet: www.q-flex.fi

France

ALUTRONIC Kühlkörper GmbH & Co. KG
Bureau de liaison France
11, rue Mittlerweg
CS 90015
F – 68025 COLMAR Cedex

Tel : + 33-389 292 16
Fax : + 33-389 204 379
sales@alutronic.fr

Great Britain

OSCO Limited
Avant Business Centre
Third Avenue, Bletchley
Milton Keynes, MK1 1DR

Tel.: +44 1908 376 688
Fax: +44 1908 379 916
Mail: sales@osco.uk.com
Internet: www.osco.uk.com

Israel

Ryt Electronics Agencies Ltd.
12 Hamefalsim st, P.O. Box 689
IL-49106 Petach Tikva

Tel.: +972 3 924 6729
Fax: +972 3 924 1040
Mail: info@ryt.co.il
Internet: www.ryt.co.il

Netherlands

Intronics BV
Postfach 123
NL-3770 AC Barneveld

Tel.: +31 34 240 7080
Fax: +31 34 241 2114
Mail: sales@intronics.nl
Internet: www.intronics.nl

Norway

EG Components Norway AS
Hoffsveien 17
NO-0275 Oslo

Tel.: +47 23 254 600
Fax: +47 23 254 601
Mail: info@egelectronics.com
Internet: www.egelectronics.com

Poland

Dacpol Co.Ltd
Pulawska str. 34
PL-05-500 Piaseczno

Tel.: +48 22 7035100
Fax: +48 22 7035101
Mail: dacpol@dacpol.com.pl

Sweden

Bejoken AB
Box 9503
S-20039 Malmö

Tel.: +46 40 227 800
Fax: +46 40 949 900
Mail: info@bejoken.se
Internet: www.bejoken.se

Switzerland

Omni Ray AG
Im Schörli 5
CH-8600 Dübendorf

Tel.: +41 44 802 28 80
Fax: +41 44 802 28 28
Mail: info@omniray.ch
Internet: www.omniray.ch

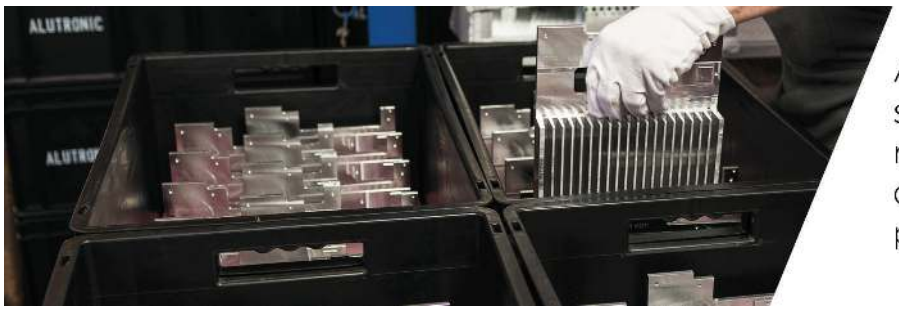
ALUTRONIC
SOLUTIONS FOR COOL RESULTS

Table of Content

Since 1977, apart from its range of standard heat sinks and casings extrusions, Alutronic also offers customised aluminum extrusions.
More than 400 customised extusions have come up since then and have brought decisive technical and economical benefits to our customers.

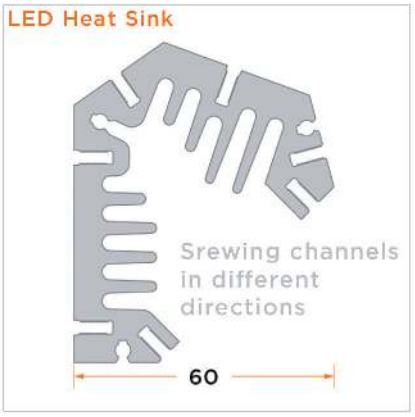
If you need any additional information on customised extrusions or like to discuss the feasibility of your ideas, please feel free to contact us.
We are glad to be able to help you!

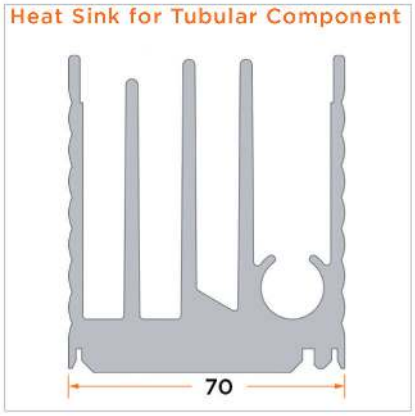
Alutronic delivers large batches quick and efficiently thanks to state-of-the-art twin-spindle technology!

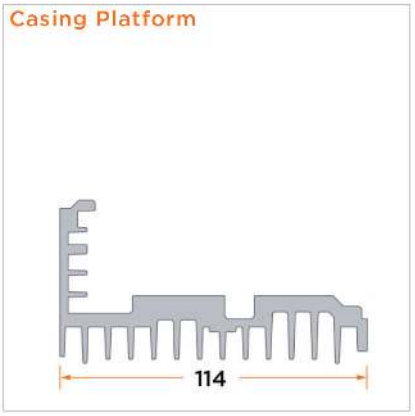


Alutronic offers logistical services, such as recycling packaging customized to your product and quantity.

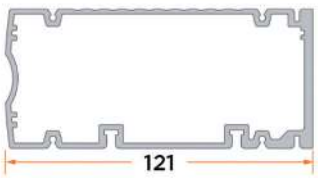
- Material reduction and reduced need for mechanical machining, e.g. by finished and pressed screw channels
- Slide-in grooves for PCBs or other assembly functions
- Improved cooling power by thermal optimisation of the assembly and convection surface for the specific application
- Integration of plateaus improves the thermal transfer (e.g. as a substitute for gap pads with very large distance to the PCB/component/heat sink or in case the components around the heat source need to be thermally insulated -> as when applying peltier technology)
- Heat sink and housing walls in one part
- Low investment costs. One time tooling cost for extruded profiles are considerably lower than that of e.g. die-cast tools
- Minimum order quantities start with 500 kg
- Stocking of extrusion material for entire order volumes or of materials provided by you.
- Cost reduction for surface finishing. Anodising and chrome-plating for the whole extrusion bar is possible.
- Short lead times times for tool making to prototyping and for serial production.



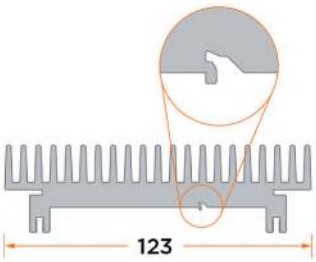




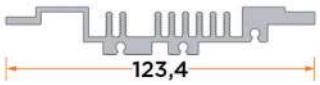
Casing with Screwing Channels and Siding Grooves



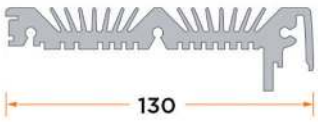
Casing Platform
Clip Groove
Screwing Channel



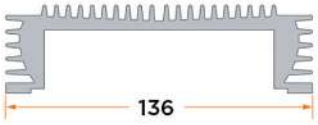
Casing Platform
Screwing Channel



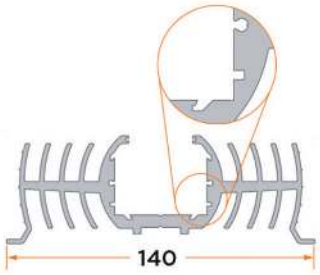
Casing Platform
PCB Board Grooves
Screwing Channels



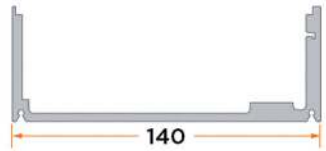
Casing Heat Sink



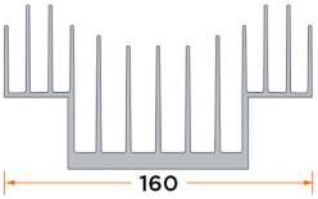
Heat Sink for Audio System
Clip Grooves
Siding Grooves
Screwing Channels



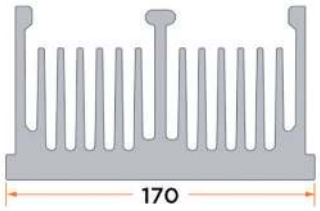
Casing Platform
Screwing Channel



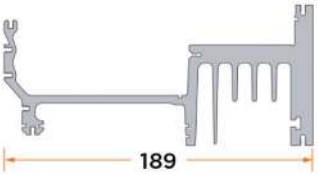
Two Plateaus



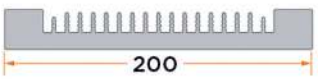
Heat Sink for Forced Convection with Twin Fans



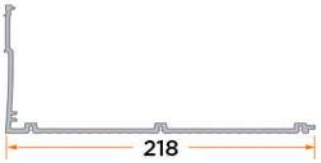
Casing Platform
Screwing Channel



Siding for Case

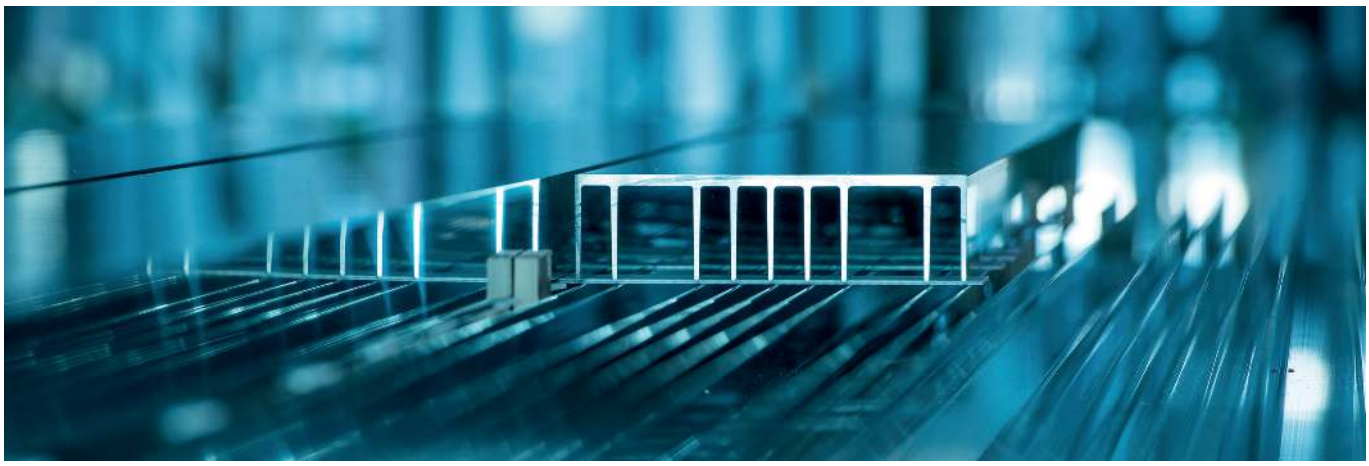


Casing Platform
Screwing Channel



The fastest way to select your standard extrusion:
The ALUTRONIC EXTRUSION- FILTER at
www.alutronic.com/products/heat-sink-profile

Table of Content



You will find the right cooling solution for your needs easily and reliably from more than 250 different heat sink extrusions.
You will find your choice of standard extrusions, sorted by profile width, in the following pages.
The display of the geometry and a detailed thermal diagram offer you an initial orientation.

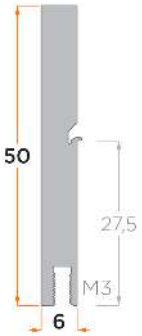
You will find detailed information on our website for each profile as well as 2D and 3D drawings available for download.

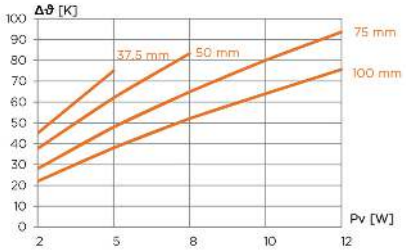
If you are unable to find the solution you are looking for in this catalogue, please call us up.

We are constantly expanding our range of products. You can also get the latest information by visiting our website at www.alutronic.de

Appropriate clips can be found in chapter Mounting / Mounting Clips

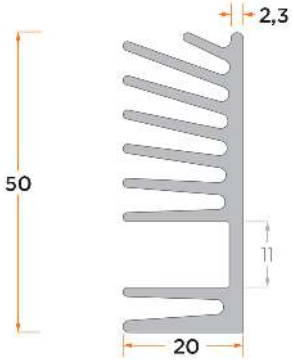
PR 101

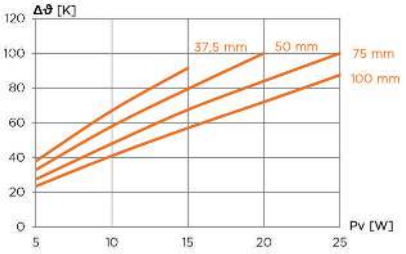




Pv [W]	RthK [K/W]			
2	22,5	18,8	14,0	11,0
5	15,0	12,4	9,6	7,6
8		10,4	8,1	6,5
10			8,0	6,4
12			7,8	6,3
mm	37,5	50	75	100
kg/m	0,77			

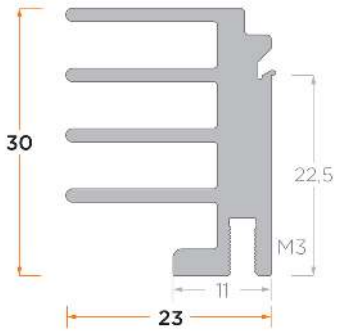
PR 139

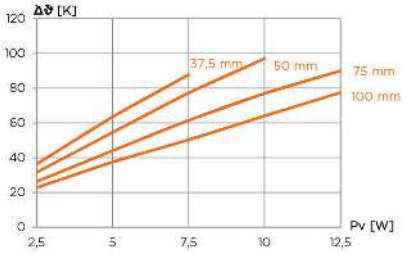




Pv [W]	RthK [K/W]			
5	7,6	6,6	5,5	4,7
10	6,7	5,8	4,8	4,1
15	6,1	5,3	4,5	3,8
20		5	4,2	3,6
25			4	3,5
mm	37,5	50	75	100
kg/m	1,08			

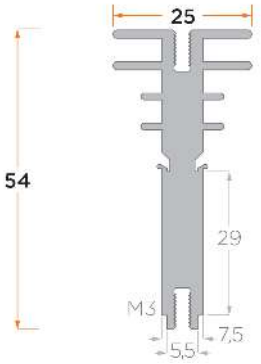
PR 290

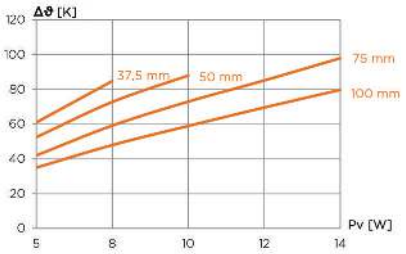




Pv [W]	RthK [K/W]			
2,5	14,5	12,6	10,5	9,1
5	12,7	10,9	8,8	7,5
7,5	11,7	10,3	8,2	6,7
10		9,7	7,7	6,4
12,5			7,2	6,2
mm	37,5	50	75	100
kg/m	0,70			

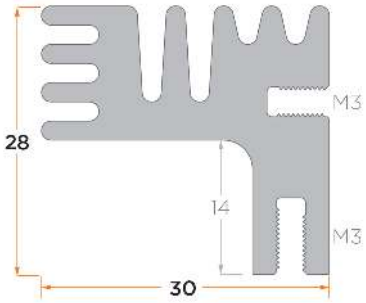
PR 118

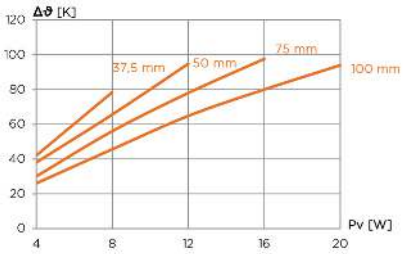




Pv [W]	RthK [K/W]			
5	12,2	10,5	8,4	7,0
8	10,6	9,1	7,4	6,0
10		8,8	7,3	5,9
12			7,1	5,8
14			7,0	5,7
mm	37,5	50	75	100
kg/m	1,16			

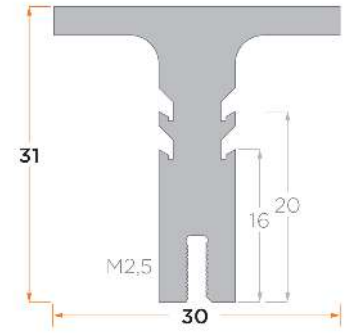
PR 234

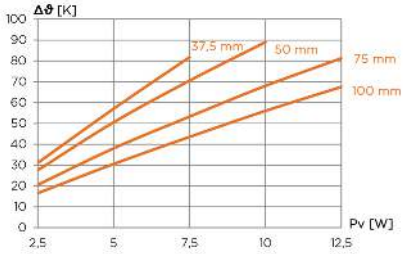




Pv [W]	RthK [K/W]			
4	10,5	9,5	7,5	6,5
8	9,8	8,2	7,0	5,7
12		7,9	6,5	5,4
16			6,1	5,0
20				4,7
mm	37,5	50	75	100
kg/m	1,09			

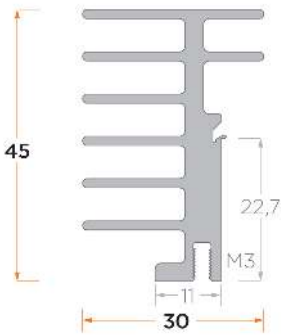
PR 116

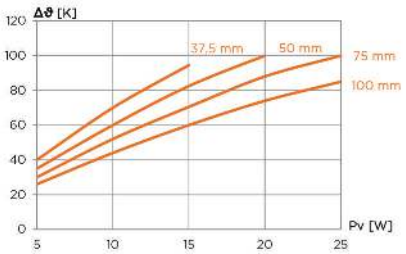




Pv [W]	RthK [K/W]			
2,5	12,4	11,0	8,2	6,6
5	11,4	10,1	7,6	6,1
7,5	10,9	9,4	7,1	5,8
10		8,9	6,8	5,6
12,5			6,5	5,4
mm	37,5	50	75	100
kg/m	0,79			

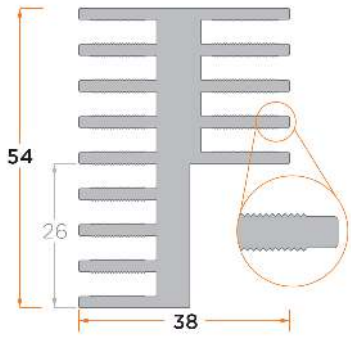
PR 127

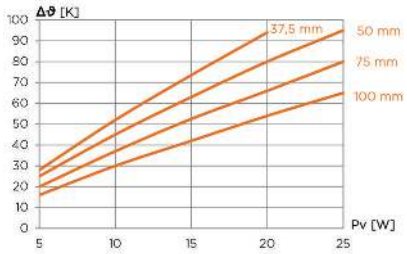




Pv [W]	RthK [K/W]			
5	8,0	7,0	6,0	5,2
10	7,0	6,0	5,2	4,4
15	6,3	5,5	4,7	4,0
20		5,0	4,4	3,7
25			4,0	3,4
mm	37,5	50	75	100
kg/m	1,07			

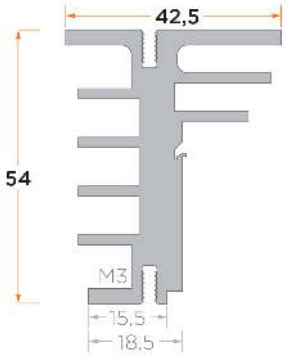
PR 136

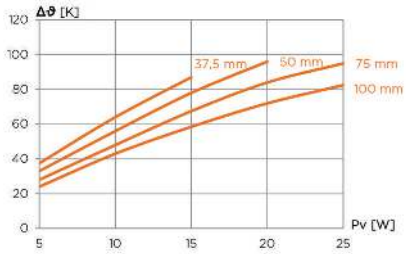




Pv [W]	RthK [K/W]			
5	5,6	5,0	4,0	3,2
10	5,2	4,5	3,7	3,0
15	4,9	4,2	3,5	2,8
20	4,7	4,0	3,3	2,7
25		3,8	3,2	2,6
mm	37,5	50	75	100
kg/m	2,07			

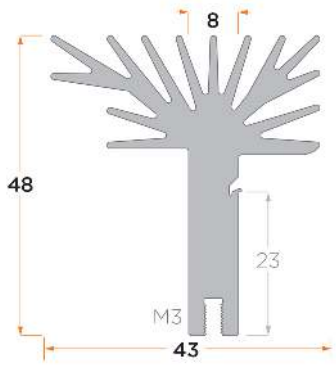
PR 119

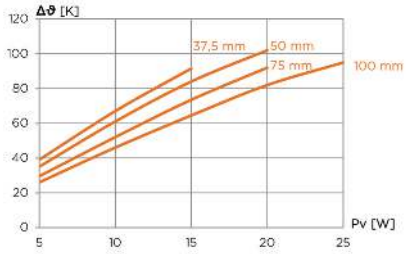




Pv [W]	RthK [K/W]			
5	7,5	6,6	5,6	4,8
10	6,4	5,6	4,8	4,3
15	5,8	5,2	4,5	3,9
20		4,8	4,2	3,6
25			3,8	3,3
mm	37,5	50	75	100
kg/m	1,95			

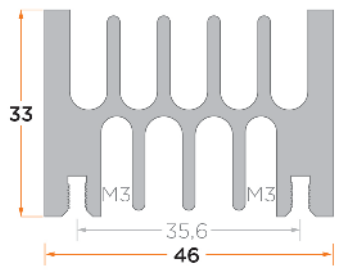
PR 292

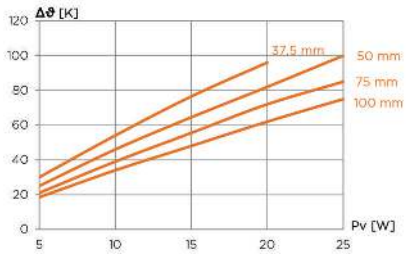




Pv [W]	RthK [K/W]			
5	7,8	7,0	5,9	5,2
10	6,7	6,1	5,2	4,6
15	6,1	5,6	4,9	4,3
20		5,1	4,6	4,1
25				3,8
mm	37,5	50	75	100
kg/m	1,57			

PR 137

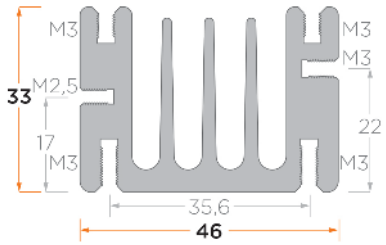


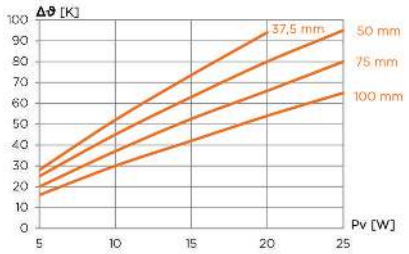


Pv [W]	RthK [K/W]			
5	6,0	5,0	4,2	3,7
10	5,4	4,6	3,9	3,4
15	5,1	4,3	3,7	3,2
20	4,8	4,1	3,6	3,1
25		4,0	3,4	3,0
mm	37,5	50	75	100
kg/m	1,89			

PR 138

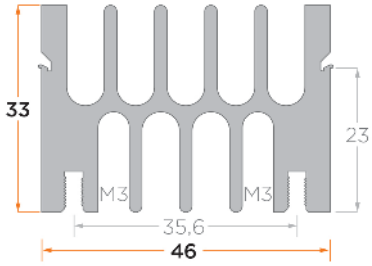
with integrated screw channel for fixing the semiconductor

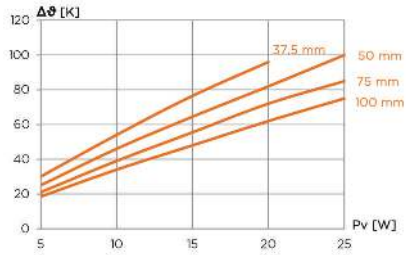




Pv [W]	RthK [K/W]			
5	5,6	5,0	4,0	3,2
10	5,2	4,5	3,7	3,0
15	4,9	4,2	3,5	2,8
20	4,7	4,0	3,3	2,7
25		3,8	3,2	2,6
mm	37,5	50	75	100
kg/m	2,17			

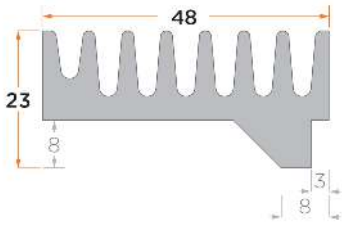
PR 293

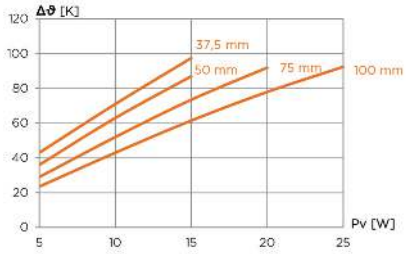




Pv [W]	RthK [K/W]			
5	6,0	5,0	4,2	3,7
10	5,4	4,6	3,9	3,4
15	5,1	4,3	3,7	3,2
20	4,8	4,1	3,6	3,1
25		4,0	3,4	3,0
mm	37,5	50	75	100
kg/m	1,76			

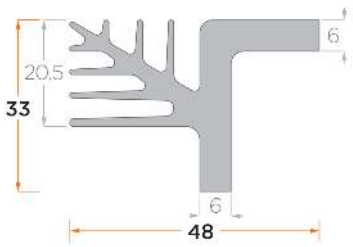
PR 132

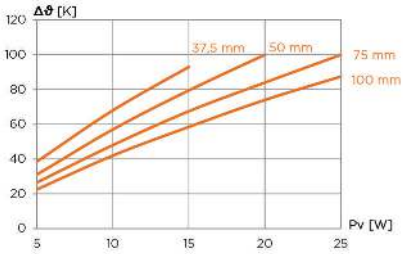




Pv [W]	RthK [K/W]			
5	8,6	7,2	5,8	4,7
10	7,1	6,3	5,2	4,3
15	6,5	5,8	4,9	4,1
20			4,6	3,9
25				3,7
mm	37,5	50	75	100
kg/m	1,37			

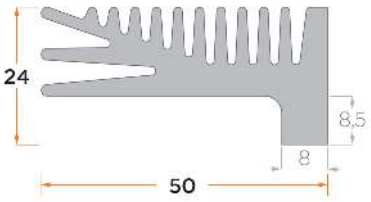
PR 143

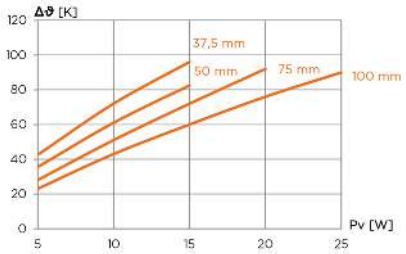




Pv [W]	RthK [K/W]			
5	7,7	6,2	5,3	4,5
10	6,8	5,7	4,8	4,2
15	6,2	5,3	4,5	3,9
20		5,0	4,2	3,7
25			4,0	3,5
mm	37,5	50	75	100
kg/m	1,35			

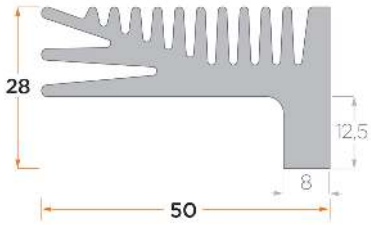
PR 144

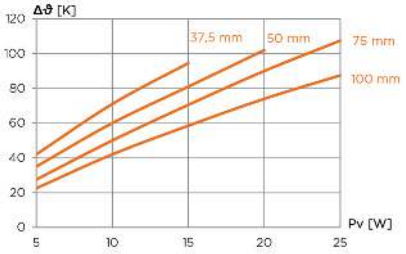




Pv [W]	RthK [K/W]			
5	8,5	7,1	5,6	4,6
10	7,2	6,1	5,1	4,3
15	6,4	5,5	4,8	4,0
20			4,6	3,8
25				3,6
mm	37,5	50	75	100
kg/m	1,61			

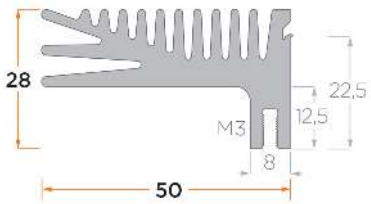
PR 133

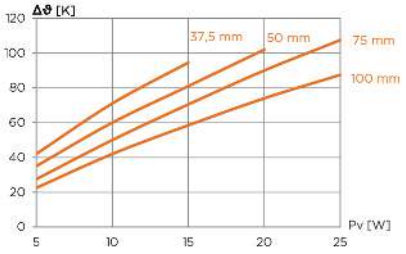




Pv [W]	RthK [K/W]			
5	8,4	7,0	5,5	4,5
10	7,1	6,0	5,0	4,2
15	6,3	5,4	4,7	3,9
20		5,1	4,5	3,7
25			4,3	3,5
mm	37,5	50	75	100
kg/m	1,75			

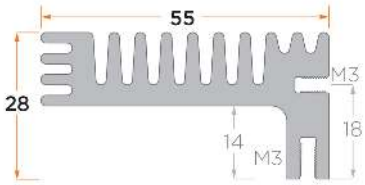
PR 233

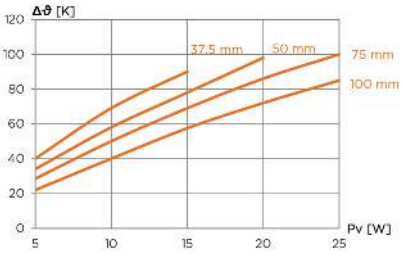




Pv [W]	RthK [K/W]			
5	8,4	7,0	5,5	4,5
10	7,1	6,0	5,0	4,2
15	6,3	5,4	4,7	3,9
20		5,1	4,5	3,7
25			4,3	3,5
mm	37,5	50	75	100
kg/m	1,64			

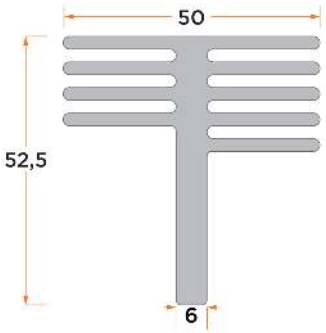
PR 126

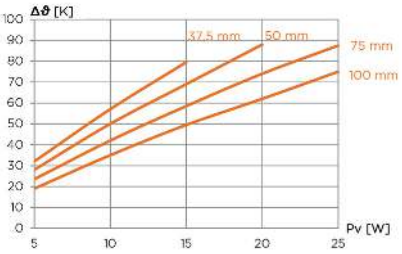




Pv [W]	RthK [K/W]			
5	8,0	6,8	5,7	4,4
10	6,9	5,8	5,0	4,0
15	6,0	5,2	4,6	3,9
20		4,9	4,3	3,6
25			4,0	3,4
mm	37,5	50	75	100
kg/m	1,65			

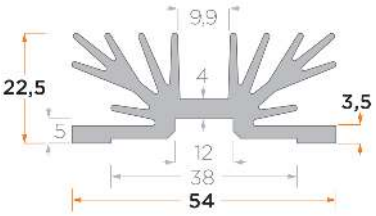
PR 268

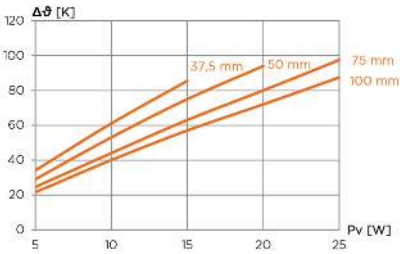




Pv [W]	RthK [K/W]			
5	6,4	5,6	4,7	3,8
10	5,7	5,0	4,2	3,5
15	5,3	4,6	3,9	3,3
20		4,4	3,7	3,1
25			3,5	3,0
mm	37,5	50	75	100
kg/m	2,14			

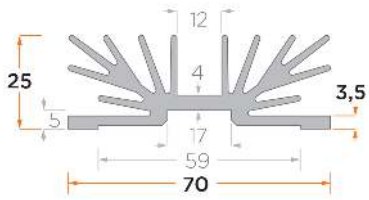
PR 134

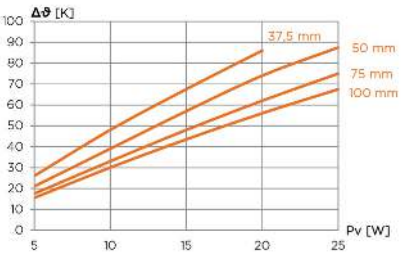




Pv [W]	RthK [K/W]			
5	6,8	5,8	4,9	4,3
10	6,1	5,3	4,4	4,0
15	5,7	5,0	4,2	3,8
20		4,7	4,0	3,6
25			3,9	3,5
mm	37,5	50	75	100
kg/m	1,33			

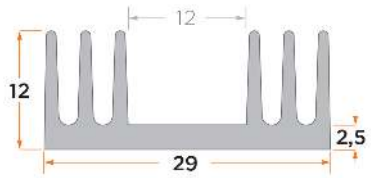
PR 135

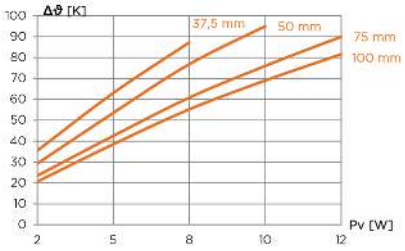




Pv [W]	RthK [K/W]			
5	5,2	4,2	3,5	3,1
10	4,8	3,9	3,3	3,0
15	4,5	3,8	3,2	2,9
20	4,3	3,7	3,1	2,8
25		3,5	3,0	2,7
mm	37,5	50	75	100
kg/m	1,80			

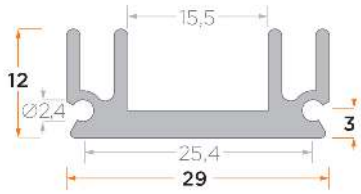
PR 20

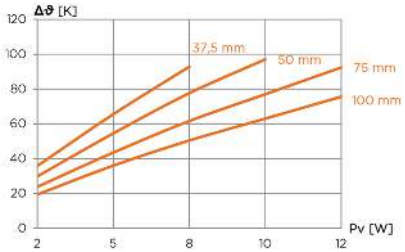




Pv [W]	RthK [K/W]			
2	17,7	14,6	11,7	10,3
5	12,6	10,7	8,5	7,7
8	10,9	9,6	7,6	6,9
10		9,5	7,6	6,9
12			7,5	6,8
mm	37,5	50	75	100
kg/m	0,39			

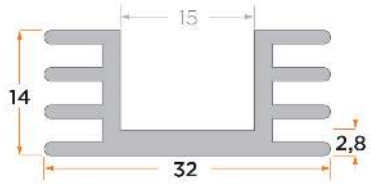
PR 23

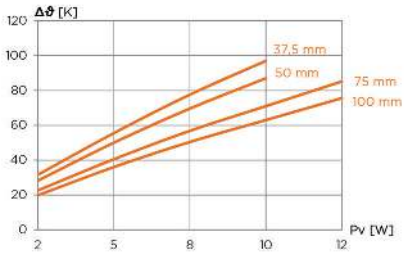




Pv [W]	RthK [K/W]			
2	17,9	14,9	11,9	9,7
5	13,1	10,9	8,7	7,2
8	11,6	9,7	7,7	6,3
10		9,7	7,7	6,3
12			7,7	6,3
mm	37,5	50	75	100
kg/m	0,40			

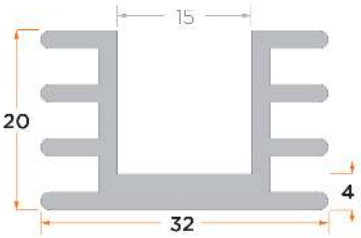
PR 27

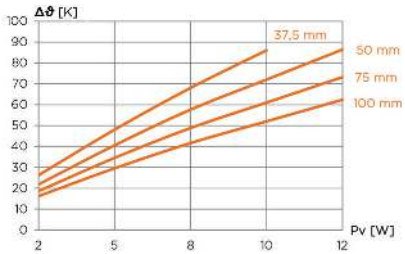




Pv [W]	RthK [K/W]			
2	15,8	14,1	11,3	9,9
5	11,1	10,0	8,1	7,2
8	9,7	8,7	7,1	6,3
10	9,7	8,7	7,1	6,3
12			7,1	6,3
mm	37,5	50	75	100
kg/m	0,46			

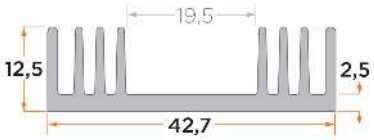
PR 25

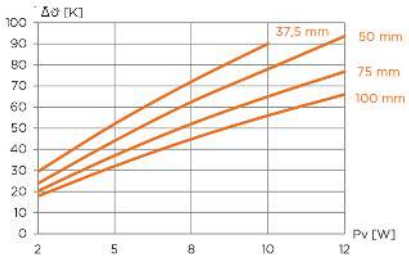




Pv [W]	RthK [K/W]			
2	13,1	10,9	9,3	8,1
5	9,6	8,1	6,9	5,9
8	8,5	7,2	6,1	5,2
10	8,6	7,2	6,1	5,2
12		7,2	6,1	5,2
mm	37,5	50	75	100
kg/m	0,65			

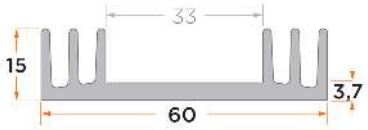
PR 22

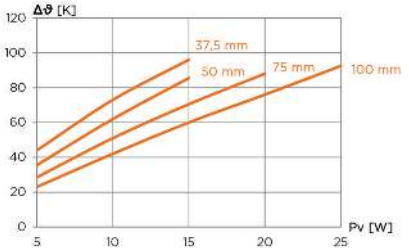




Pv [W]	RthK [K/W]			
2	14,7	11,9	10,1	8,9
5	10,4	8,8	7,4	6,4
8	9,0	7,8	6,5	5,6
10	9,0	7,8	6,5	5,6
12		7,8	6,4	5,5
mm	37,5	50	75	100
kg/m	0,57			

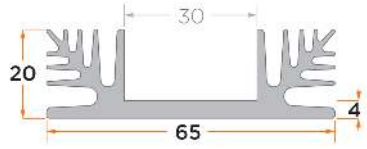
PR 35

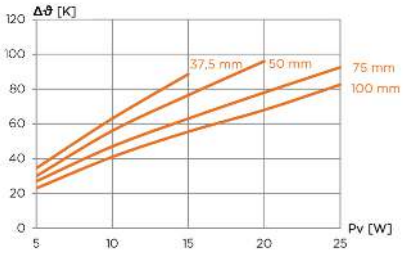




Pv [W]	RthK [K/W]			
5	8,8	7,1	5,7	4,6
10	7,3	6,2	5,1	4,2
15	6,4	5,7	4,7	4,0
20			4,4	3,8
25				3,7
mm	37,5	50	75	100
kg/m	0,96			

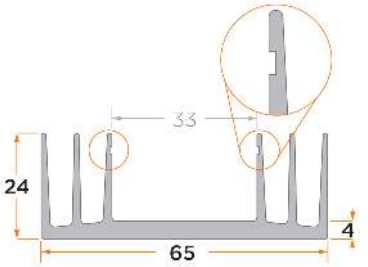
PR 125

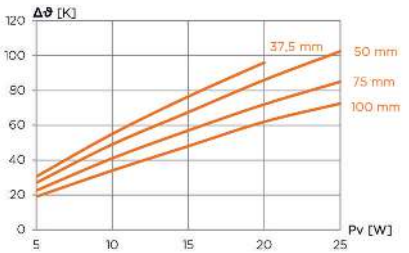




Pv [W]	RthK [K/W]			
5	6,9	6,0	5,4	4,6
10	6,3	5,6	4,7	4,1
15	5,9	5,1	4,2	3,7
20		4,8	3,9	3,4
25			3,7	3,3
mm	37,5	50	75	100
kg/m	1,36			

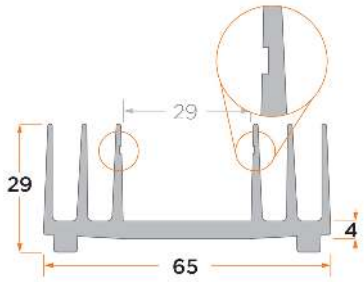
PR 40

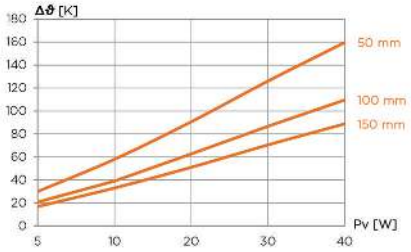




Pv [W]	RthK [K/W]			
5	6,1	5,4	4,5	3,8
10	5,5	4,9	4,1	3,4
15	5,1	4,5	3,8	3,2
20	4,8	4,3	3,6	3,1
25		4,1	3,4	2,9
mm	37,5	50	75	100
kg/m	1,22			

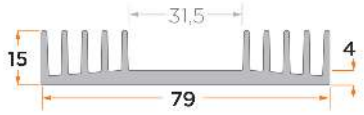
PR 50

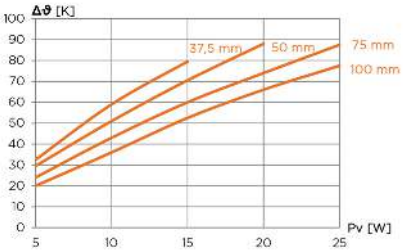




Pv [W]	RthK [K/W]		
5	6,0	4,2	3,4
10	5,8	3,9	3,3
20	4,5	3,1	2,6
30	4,2	2,9	2,4
40	4,0	2,7	2,2
mm	50	100	150
kg/m	1,28		

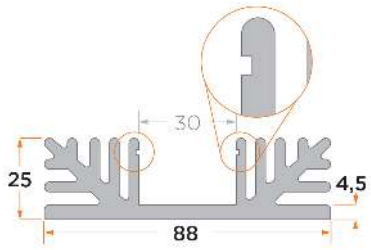
PR 65

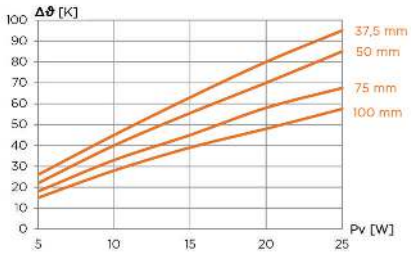




Pv [W]	RthK [K/W]			
5	6,5	5,9	4,8	4,0
10	5,9	5,1	4,3	3,6
15	5,3	4,7	4,0	3,5
20		4,4	3,7	3,3
25			3,5	3,1
mm	37,5	50	75	100
kg/m	1,22			

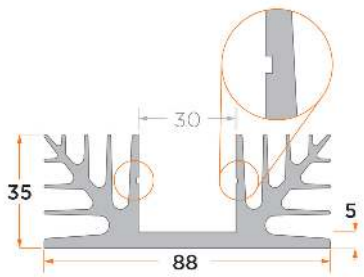
PR 128

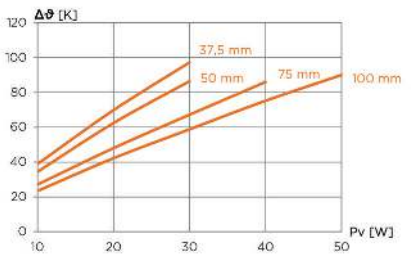




Pv [W]	RthK [K/W]			
5	5,2	4,4	3,6	3,0
10	4,5	4,0	3,3	2,8
15	4,2	3,7	3,0	2,6
20	4,0	3,5	2,9	2,4
25	3,8	3,4	2,7	2,3
mm	37,5	50	75	100
kg/m	2,97			

PR 130

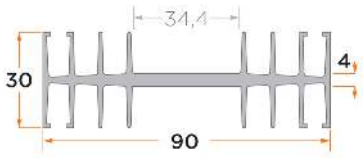


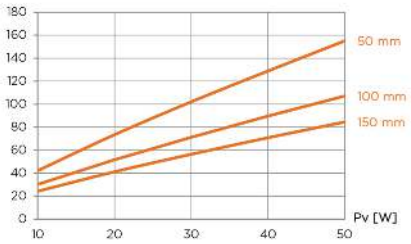


Pv [W]	RthK [K/W]			
10	3,89	3,44	2,71	2,34
20	3,49	3,12	2,40	2,11
30	3,24	2,88	2,24	1,96
40			2,15	1,88
50				1,80
mm	37,5	50	75	100
kg/m	2,94			

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

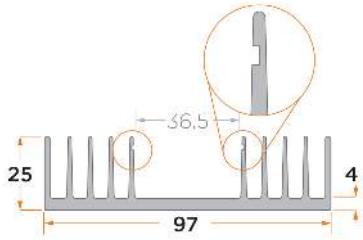
PR 198

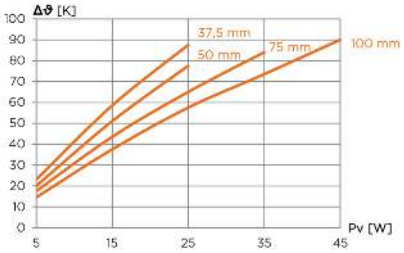




Pv [W]	RthK [K/W]		
10	4,2	3,0	2,4
20	3,7	2,6	2,1
30	3,4	2,4	1,9
40	3,2	2,2	1,8
50	3,1	2,1	1,7
mm	50	100	150
kg/m	1,54		

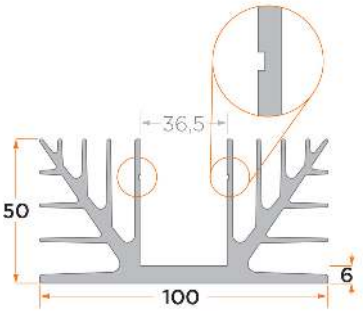
PR 90

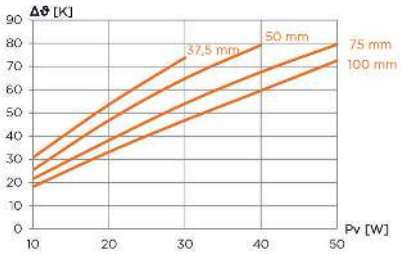




Pv [W]	RthK [K/W]			
5	4,6	4,0	3,5	2,9
15	3,9	3,4	2,9	2,5
25	3,5	3,1	2,6	2,3
35			2,4	2,1
45				2,0
mm	37,5	50	75	100
kg/m	1,92			

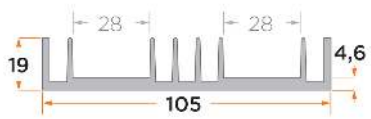
PR 131

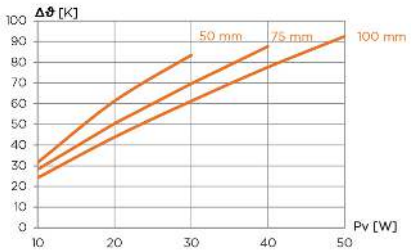




Pv [W]	RthK [K/W]			
10	3,08	2,54	2,16	1,82
20	2,68	2,34	1,91	1,66
30	2,46	2,16	1,80	1,56
40		1,98	1,69	1,49
50			1,59	1,45
mm	37,5	50	75	100
kg/m	4,32			

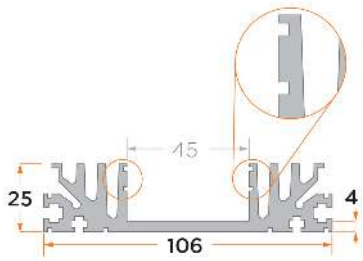
PR 140

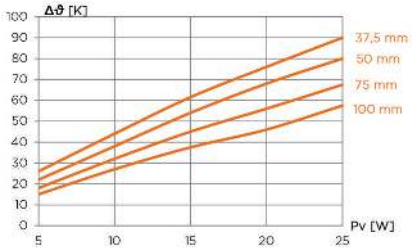




Pv [W]	RthK [K/W]		
10	3,16	2,83	2,42
20	3,06	2,52	2,19
30	2,78	2,32	2,04
40		2,19	1,94
50			1,85
mm	50	75	100
kg/m	1,93		

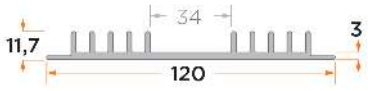
PR 129

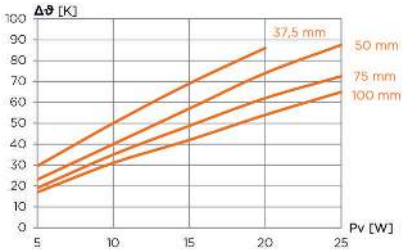




Pv [W]	RthK [K/W]			
5	5,2	4,4	3,6	3,0
10	4,4	3,8	3,2	2,7
15	4,1	3,6	3,0	2,5
20	3,8	3,4	2,8	2,3
25	3,6	3,2	2,7	2,3
mm	37,5	50	75	100
kg/m	2,70			

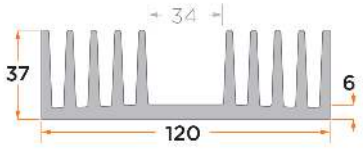
PR 100

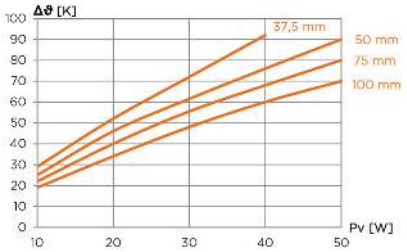




Pv [W]	RthK [K/W]			
5	5,9	4,6	3,8	3,4
10	5,0	4,0	3,5	3,1
15	4,6	3,8	3,3	2,8
20	4,3	3,7	3,1	2,7
25		3,5	2,9	2,6
mm	37,5	50	75	100
kg/m	1,35			

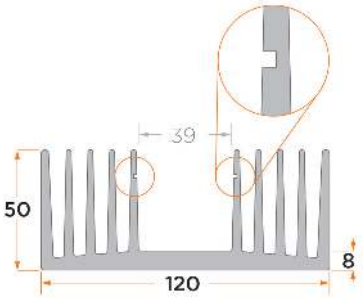
PR 93

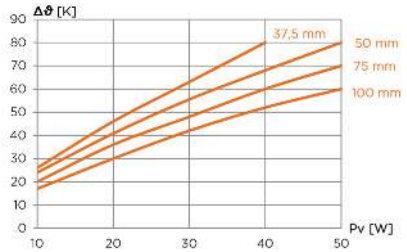




Pv [W]	RthK [K/W]			
10	2,9	2,5	2,2	1,9
20	2,6	2,3	2,0	1,7
30	2,4	2,1	1,9	1,6
40	2,3	1,9	1,7	1,5
50		1,8	1,6	1,4
mm	37,5	50	75	100
kg/m	4,93			

PR 95

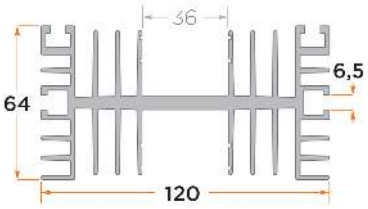


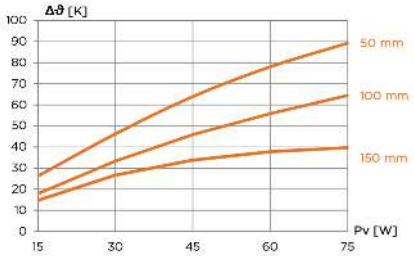


Pv [W]	RthK [K/W]			
10	2,6	2,4	2,0	1,7
20	2,3	2,0	1,8	1,5
30	2,1	1,9	1,6	1,4
40	2,0	1,7	1,5	1,3
50		1,6	1,4	1,2
mm	37,5	50	75	100
kg/m	5,92			

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

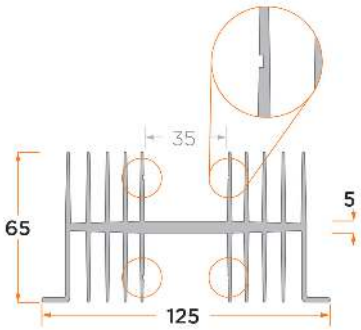
PR 208

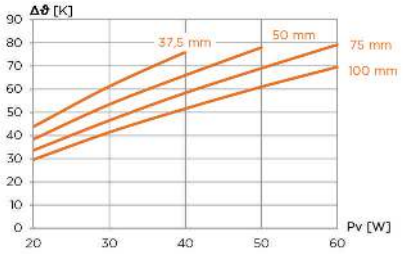




Pv [W]	RthK [K/W]		
15	1,75	1,19	0,98
30	1,54	1,11	0,89
45	1,42	1,02	0,75
60	1,30	0,93	0,63
75	1,19	0,86	0,53
mm	50	100	150
kg/m	4,68		

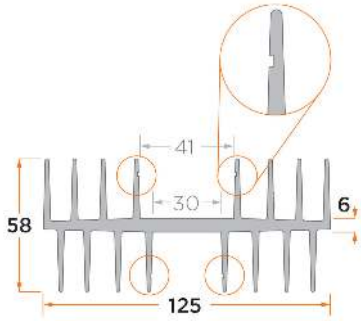
PR 192

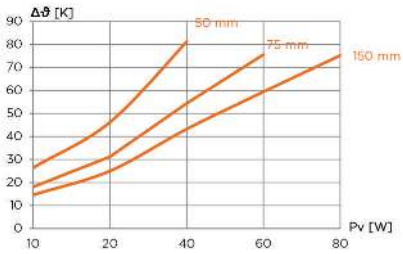




Pv [W]	RthK [K/W]			
20	2,19	1,92	1,68	1,48
30	2,04	1,78	1,55	1,38
40	1,90	1,65	1,46	1,29
50		1,56	1,38	1,22
60			1,32	1,16
mm	37,5	50	75	100
kg/m	4,33			

PR 362





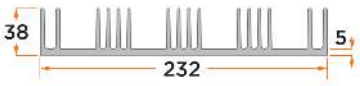
Pv [W]	RthK [K/W]		
10	2,6	1,8	1,5
20	2,3	1,6	1,3
40	2,0	1,4	1,1
60	1,9	1,3	1,0
80	1,8	1,2	0,9
mm	50	100	150
kg/m	4,29		

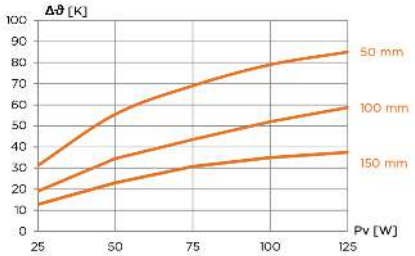
PR 156

Pv [W]	RthK [K/W]		
25	1,22	0,76	0,51
50	1,11	0,63	0,43

Heat sinks from Alutronic are 100% deburred. Carefully and with experience - this is our craft!

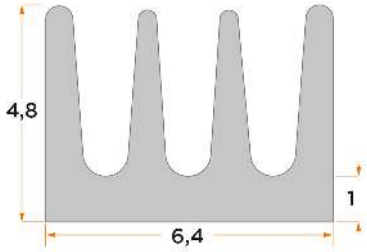
PR 157

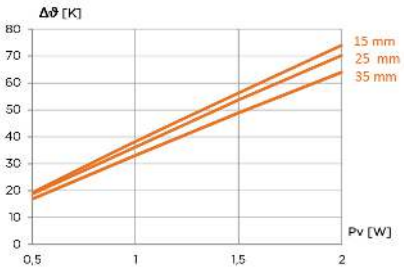




Pv [W]	RthK [K/W]		
25	1,25	0,76	0,51
50	1,11	0,69	0,46
75	0,92	0,58	0,41
100	0,79	0,52	0,35
125	0,68	0,47	0,30
mm	50	100	150
kg/m	7,24		

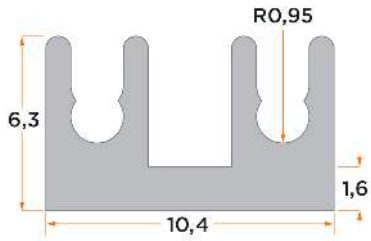
PR 7

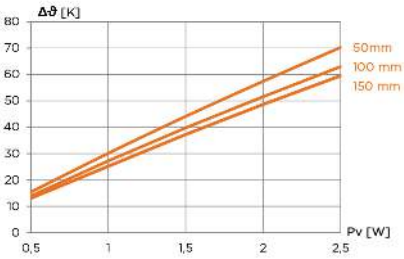




Pv [W]	RthK [K/W]		
0,5	38,5	37,5	33,7
1	38,2	36,2	33,1
1,5	37,5	35,8	32,6
2	37,0	35,1	32,0
mm	15	25	35
kg/m	0,05		

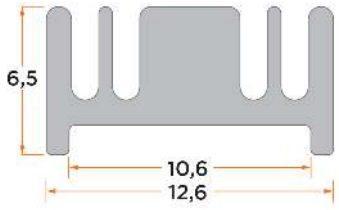
PR 43

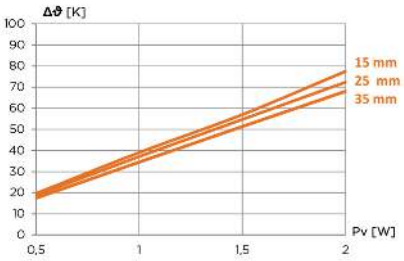




Pv [W]	RthK [K/W]		
0,5	30,8	27,8	26,1
1	30,1	27,2	25,2
1,5	29,4	26,5	24,8
2	28,7	25,8	24,3
2,5	28,1	25,2	23,8
mm	50	100	150
kg/m	0,12		

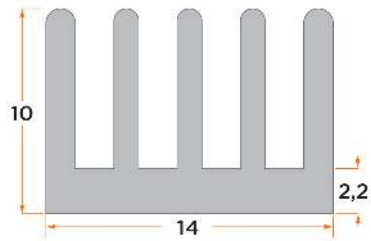
PR 5

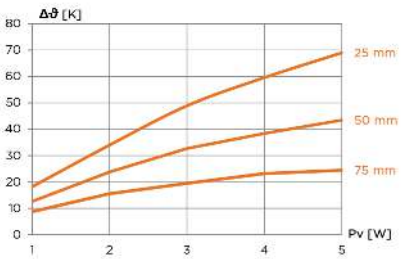




Pv [W]	RthK [K/W]		
0,5	39,2	37,5	34,8
1	39,0	37,1	34,5
1,5	38,0	36,5	34,2
2	38,8	36,2	34,0
mm	15	25	35
kg/m	0,15		

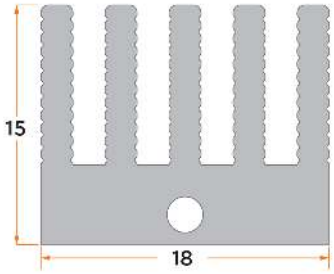
PR 44

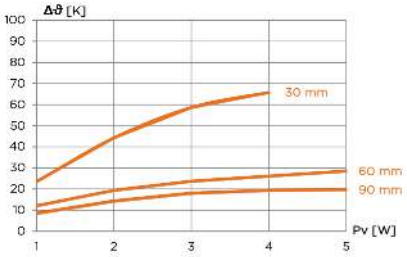




Pv [W]	RthK [K/W]		
1	18,2	12,6	8,7
2	17,0	11,9	7,8
3	16,3	10,9	6,5
4	14,9	9,6	5,8
5	13,8	8,7	4,9
mm	25	50	75
kg/m	0,20		

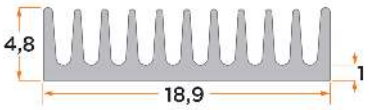
PR 407

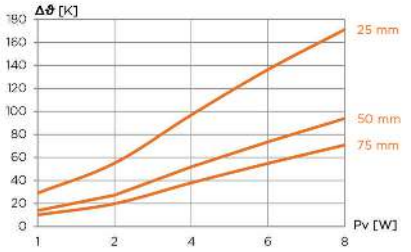




Pv [W]	RthK [K/W]		
1	23,52	12,05	8,45
2	22,12	9,71	7,16
3	19,56	7,90	6,01
4	16,45	6,54	4,86
5		5,71	3,94
mm	30	60	90
kg/m	0,49		

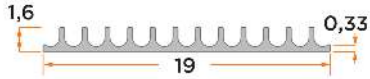
PR 8

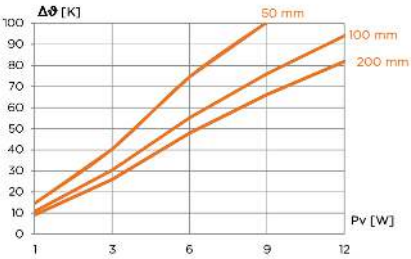




Pv [W]	RthK [K/W]		
1	29,0	13,9	10,1
2	27,5	13,6	9,9
4	24,2	12,9	9,5
6	22,7	12,3	9,1
8	21,4	11,7	8,9
mm	25	50	75
kg/m	0,13		

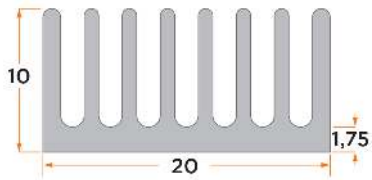
PR 363

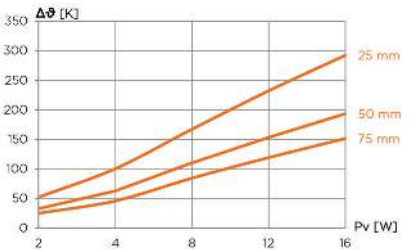




Pv [W]	RthK [K/W]		
1	14,58	10,82	9,11
3	13,45	10,11	8,62
6	12,43	9,20	7,98
9	11,17	8,46	7,35
12		7,84	6,82
mm	50	100	200
kg/m	5,15		

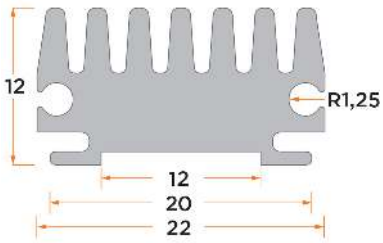
PR 45

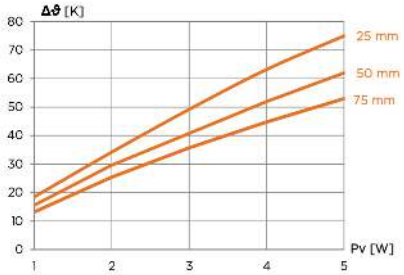




Pv [W]	RthK [K/W]		
2	26,3	16,6	12,7
4	25,2	15,8	11,6
8	20,9	13,8	10,6
12	19,4	12,8	10,0
16	18,3	12,1	9,5
mm	25	50	75
kg/m	0,28		

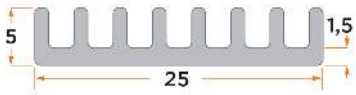
PR 6

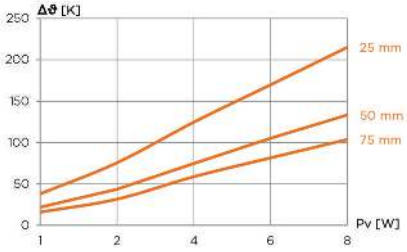




Pv [W]	RthK [K/W]		
1	18,5	15,6	13,2
2	17,1	14,8	12,7
3	16,4	13,6	11,9
4	15,8	13,0	11,2
5	15,0	12,4	10,6
mm	15	25	35
kg/m	0,47		

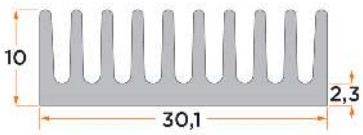
PR 46

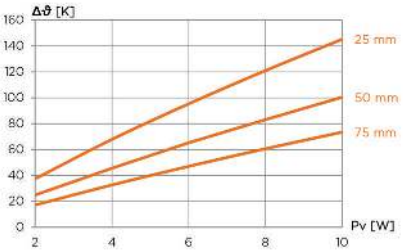




Pv [W]	RthK [K/W]		
1	38,0	21,9	16,0
2	37,8	21,8	15,8
4	31,2	18,7	14,7
6	28,3	17,5	13,6
8	26,9	16,7	13,0
mm	25	50	75
kg/m	0,20		

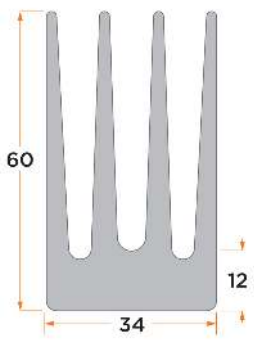
PR 47

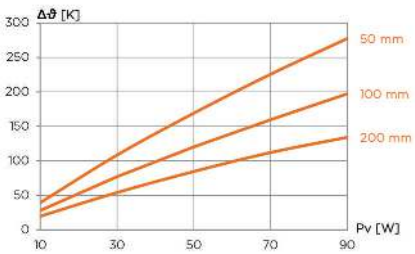




Pv [W]	RthK [K/W]		
2	18,7	12,4	8,6
4	17,0	11,4	8,2
6	15,9	10,9	7,8
8	15,1	10,4	7,6
10	14,5	10,0	7,3
mm	25	50	75
kg/m	0,48		

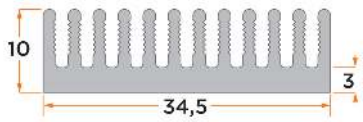
PR 389

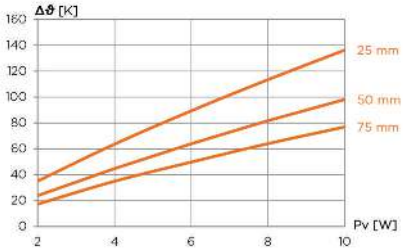




Pv [W]	RthK [K/W]		
10	3,9	2,8	2,0
30	3,6	2,6	1,8
50	3,4	2,4	1,7
70	3,2	2,3	1,6
90	3,1	2,2	1,5
mm	50	100	200
kg/m	2,84		

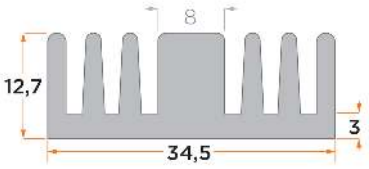
PR 48

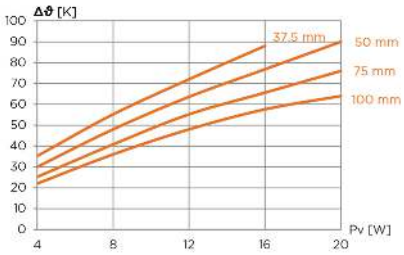




Pv [W]	RthK [K/W]		
2	17,54	11,95	8,65
4	15,89	11,17	8,73
6	14,89	10,64	8,29
8	14,18	10,21	8,00
10	13,63	9,81	7,69
mm	25	50	75
kg/m	0,56		

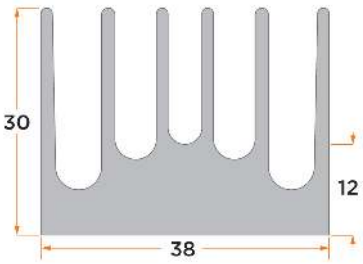
PR 36

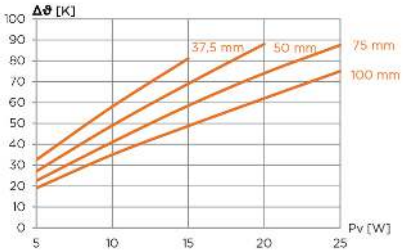




Pv [W]	RthK [K/W]			
4	8,8	7,5	6,3	5,5
8	6,9	6,0	5,1	4,5
12	6,0	5,3	4,6	4,0
16	5,5	4,8	4,1	3,6
20		4,5	3,8	3,2
mm	37,5	50	75	100
kg/m	0,83			

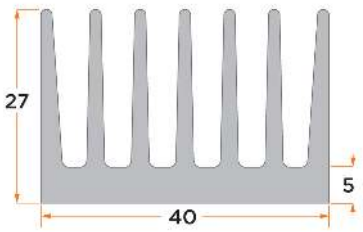
PR 146

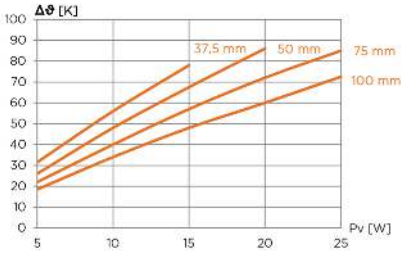




Pv [W]	RthK [K/W]			
5	6,5	5,4	4,5	3,8
10	5,8	4,9	4,1	3,5
15	5,4	4,6	3,9	3,3
20		4,4	3,7	3,1
25			3,5	3,0
mm	37,5	50	75	100
kg/m	1,54			

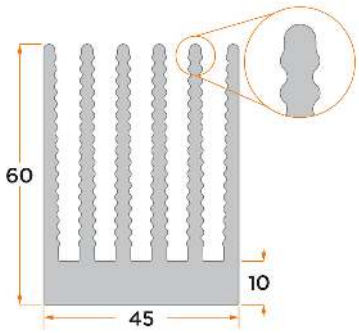
PR 313

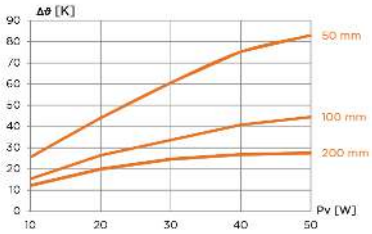




Pv [W]	RthK [K/W]			
5	6,3	5,2	4,4	3,7
10	5,6	4,8	4,0	3,4
15	5,2	4,5	3,8	3,2
20		4,3	3,6	3,0
25			3,4	2,9
mm	37,5	50	75	100
kg/m	1,40			

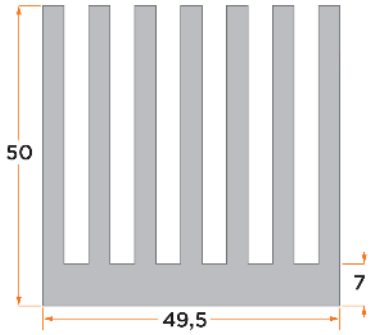
PR 406

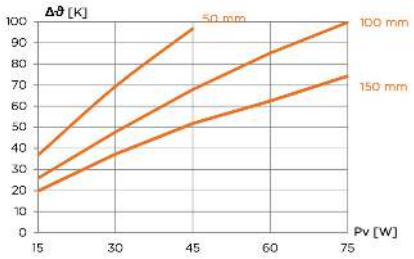




Pv [W]	RthK [K/W]		
10	2,56	1,54	1,23
20	2,20	1,32	1,00
30	2,02	1,12	0,82
40	1,88	1,02	0,67
50	1,66	0,89	0,55
mm	50	100	200
kg/m	3,69		

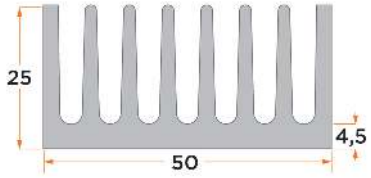
PR 402

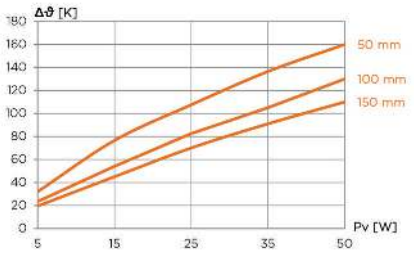




Pv [W]	RthK [K/W]		
15	2,45	1,72	1,32
30	2,31	1,59	1,24
45	2,15	1,51	1,15
60		1,42	1,04
75		1,33	0,99
mm	50	100	150
kg/m	3,82		

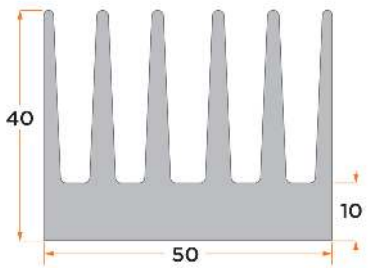
PR 312

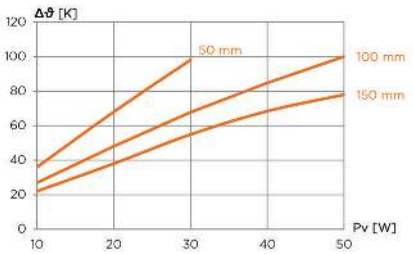




Pv [W]	RthK [K/W]		
5	6,4	4,7	3,9
15	5,1	3,6	3,0
25	4,3	3,3	2,8
35	3,9	3,0	2,6
50	3,2	2,6	2,2
mm	50	100	150
kg/m	1,79		

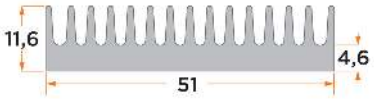
PR 289

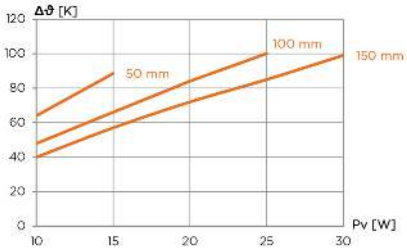




Pv [W]	RthK [K/W]		
10	3,6	2,7	2,2
20	3,4	2,4	1,9
30	3,3	2,3	1,8
40		2,1	1,7
50		2,0	1,6
mm	50	100	150
kg/m	2,68		

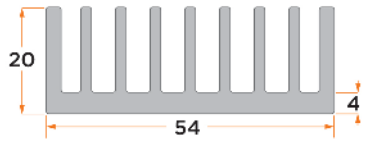
PR 151

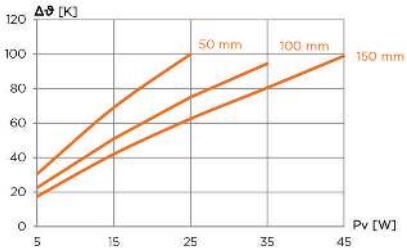




Pv [W]	RthK [K/W]		
10	6,4	4,8	4,0
15	5,9	4,4	3,8
20		4,2	3,6
25		4,0	3,4
30			3,3
mm	50	100	150
kg/m	1,05		

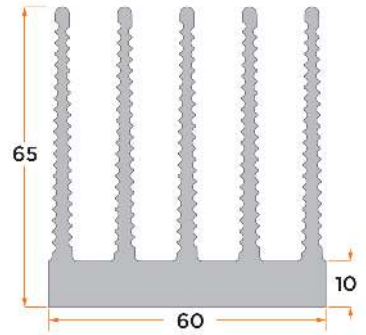
PR 159

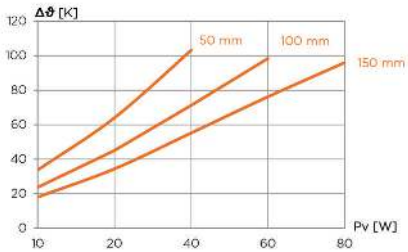




Pv [W]	RthK [K/W]		
5	6,1	4,5	3,5
15	4,6	3,4	2,8
25	4,0	3,0	2,5
35		2,7	2,3
45			2,2
mm	50	100	150
kg/m	1,49		

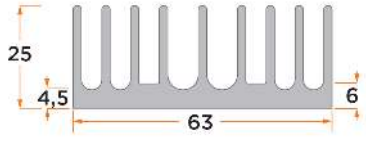
PR 398

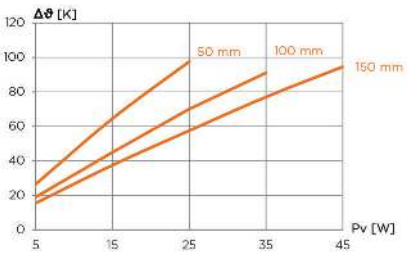




Pv [W]	RthK [K/W]		
10	3,37	2,37	1,80
20	3,20	2,25	1,72
40	2,58	1,78	1,38
60	2,40	1,64	1,27
80	2,28	1,56	1,20
mm	50	100	150
kg/m	3,65		

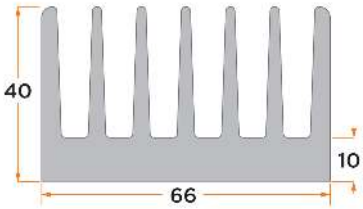
PR 296

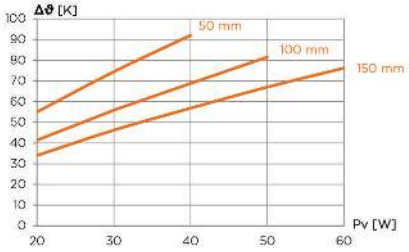




Pv [W]	RthK [K/W]		
5	5,3	3,8	3,1
15	4,3	3,0	2,5
25	3,9	2,8	2,3
35		2,6	2,2
45			2,1
mm	50	100	150
kg/m	1,86		

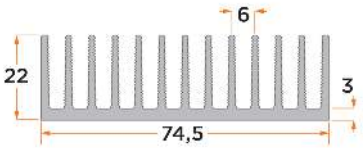
PR 168

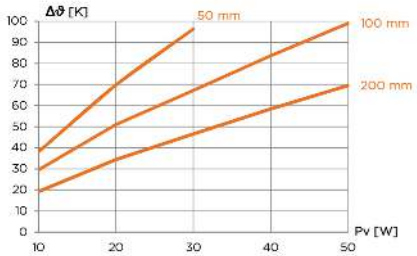




Pv [W]	RthK [K/W]		
20	2,75	2,07	1,70
30	2,48	1,86	1,54
40	2,30	1,72	1,42
50		1,63	1,34
60		1,54	1,27
mm	50	100	150
kg/m	3,72		

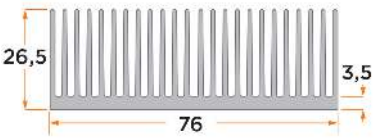
PR 411

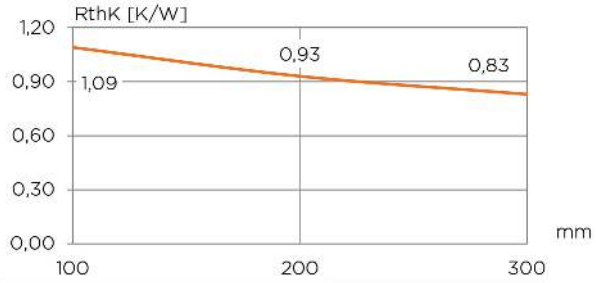




Pv [W]	RthK [K/W]		
10	3,81	2,95	1,92
20	3,49	2,55	1,72
30	3,21	2,24	1,55
40		2,09	1,46
50		1,98	1,39
mm	50	100	200
kg/m	1,71		

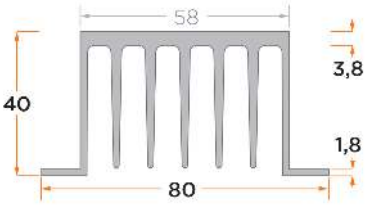
PR 417

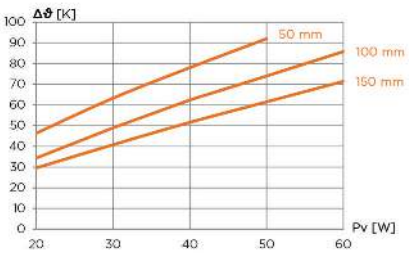




Gewicht / Weight	2,51 kg/m
Luftstrom / Airflow	1,0 m/s

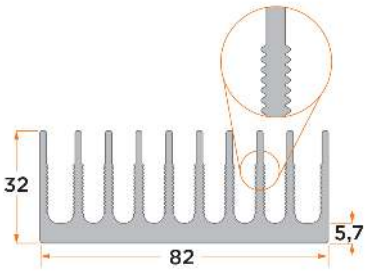
PR 181





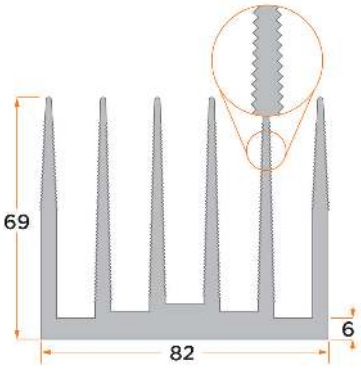
Pv [W]	RthK [K/W]		
20	2,32	1,72	1,48
30	2,11	1,63	1,36
40	1,95	1,56	1,29
50	1,84	1,48	1,23
60		1,43	1,19
mm	50	100	150
kg/m	1,99		

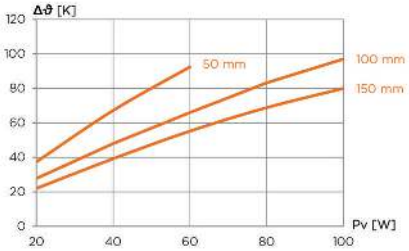
PR 367



Gewicht / Weight	2,87 kg/m
Luftstrom / Airflow	1,0 m/s

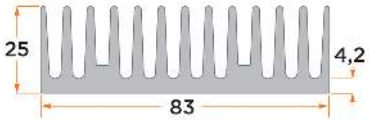
PR 314

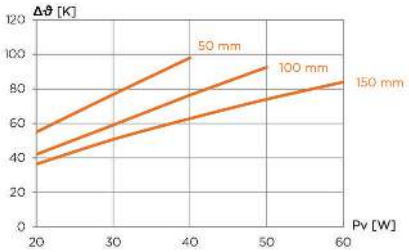




Pv [W]	RthK [K/W]		
20	1,87	1,39	1,10
40	1,68	1,20	0,98
60	1,54	1,10	0,92
80		1,04	0,86
100		0,97	0,80
mm	50	100	150
kg/m	4,95		

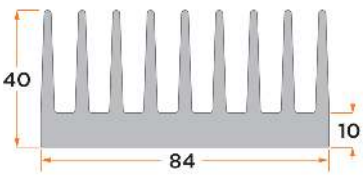
PR 193

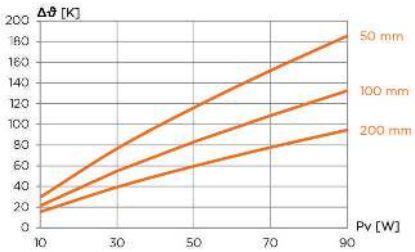




Pv [W]	RthK [K/W]		
20	2,75	2,10	1,82
30	2,56	1,97	1,69
40	2,45	1,91	1,57
50		1,85	1,48
60			1,40
mm	50	100	150
kg/m	2,92		

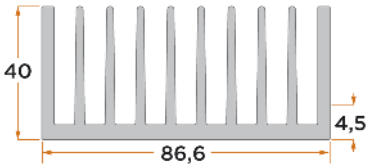
PR 388

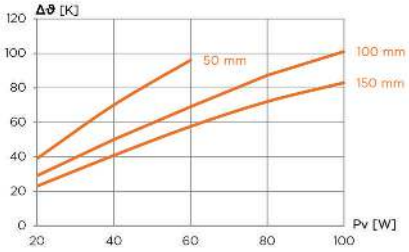




Pv [W]	RthK [K/W]		
10	2,96	2,14	1,54
30	2,55	1,83	1,31
50	2,32	1,66	1,19
70	2,17	1,55	1,11
90	2,06	1,47	1,05
mm	50	100	200
kg/m	4,43		

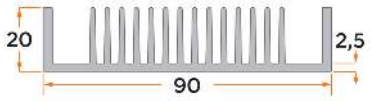
PR 244

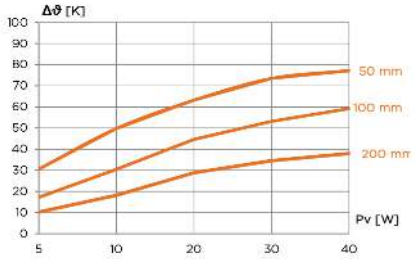




Pv [W]	RthK [K/W]		
20	1,95	1,45	1,15
40	1,75	1,25	1,02
60	1,60	1,15	0,96
80		1,09	0,90
100		1,01	0,83
mm	50	100	150
kg/m	3,66		

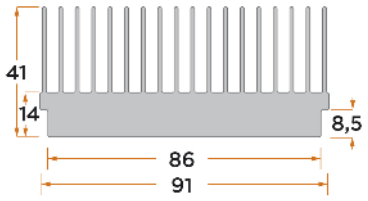
PR 405

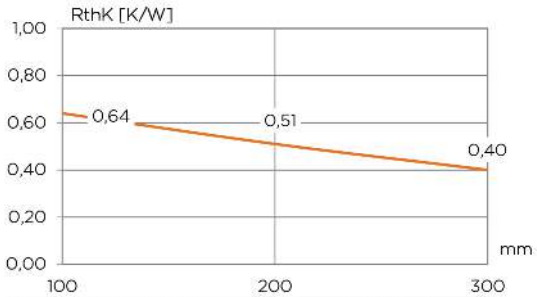




Pv [W]	RthK [K/W]		
5	6,12	3,44	2,04
10	4,98	3,05	1,82
20	3,16	2,23	1,44
30	2,45	1,77	1,15
40	1,93	1,48	0,95
mm	50	100	200
kg/m	1,99		

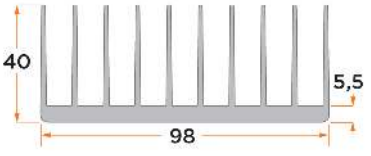
PR 404

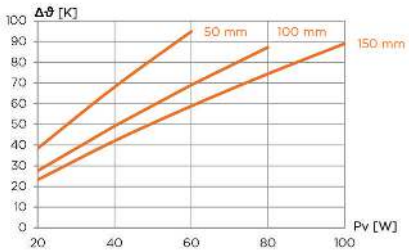




Gewicht / Weight	4,89 kg/m
Luftstrom / Airflow	1,0 m/s

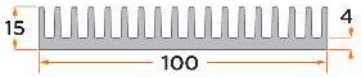
PR 182

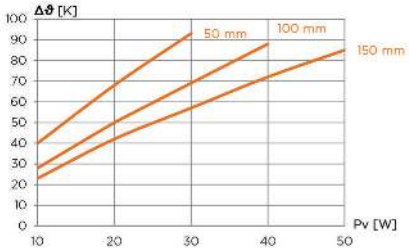




Pv [W]	RthK [K/W]		
20	1,92	1,38	1,16
40	1,70	1,23	1,05
60	1,58	1,15	0,98
80		1,09	0,93
100			0,89
mm	50	100	150
kg/m	3,04		

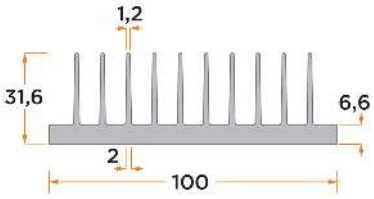
PR 161

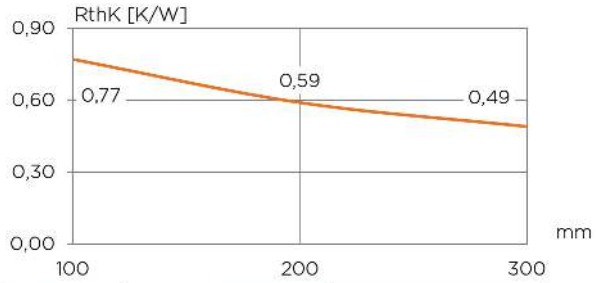




Pv [W]	RthK [K/W]		
10	4,0	2,8	2,3
20	3,4	2,5	2,1
30	3,1	2,3	1,9
40		2,2	1,8
50			1,7
mm	50	100	150
kg/m	2,15		

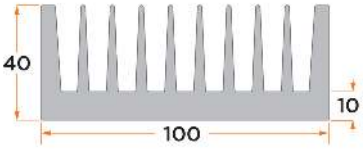
PR 408

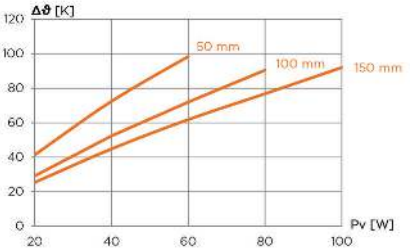




Gewicht / Weight	2,85 kg/m
Luftstrom / Airflow	1,0 m/s

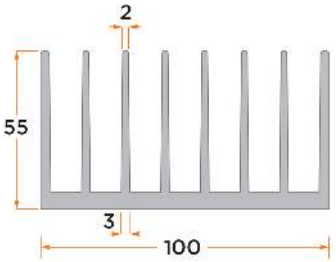
PR 173

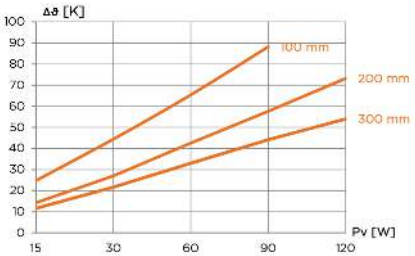




Pv [W]	RthK [K/W]		
20	2,07	1,46	1,27
40	1,81	1,31	1,12
60	1,64	1,20	1,03
80		1,13	0,96
100			0,92
mm	50	100	150
kg/m	5,77		

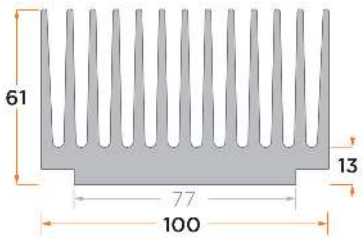
PR 410

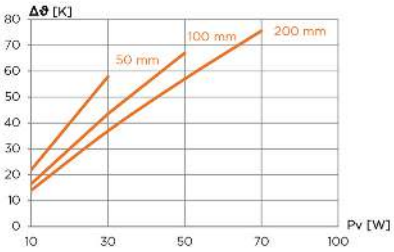




Pv [W]	RthK [K/W]		
15	1,65	0,95	0,77
30	1,48	0,90	0,72
60	1,09	0,71	0,55
90	0,98	0,64	0,49
120		0,61	0,45
mm	100	200	300
kg/m	4,48		

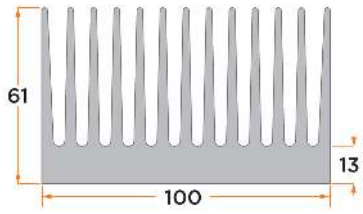
PR 400

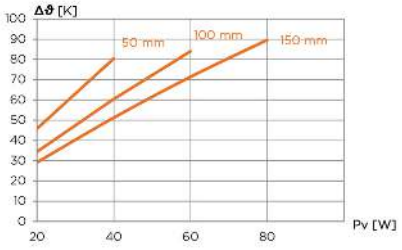




Pv [W]	RthK [K/W]		
10	2,19	1,65	1,40
30	1,93	1,45	1,23
50		1,34	1,14
70			1,08
100			
mm	50	100	200
kg/m	8,30		

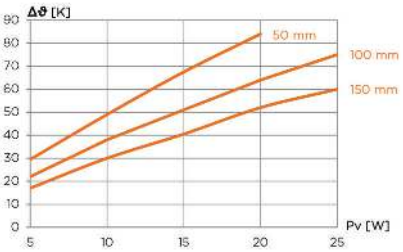
PR 213





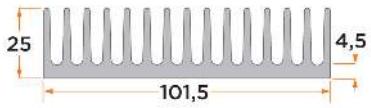
Pv [W]	RthK [K/W]		
20	2,29	1,72	1,46
40	2,01	1,51	1,28
60		1,40	1,19
80			1,12
mm	50	100	150
kg/m	8,43		

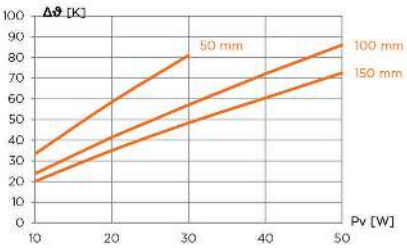
PR 167



Pv [W]	RthK [K/W]		
5	5,9	4,4	3,4
10	4,9	3,8	3,0
15	4,5	3,4	2,7
20	4,2	3,2	2,6
25		3,0	2,4
mm	50	100	150
kg/m	1,09		

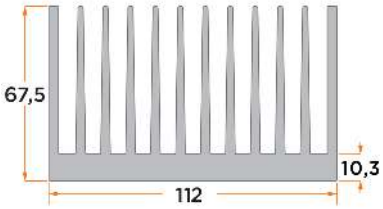
PR 297

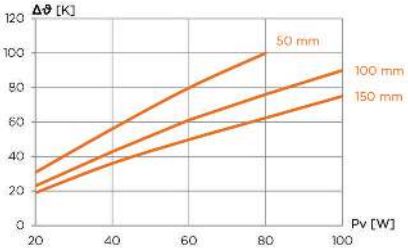




Pv [W]	RthK [K/W]		
10	3,34	2,39	2,01
20	2,92	2,07	1,75
30	2,70	1,90	1,61
40		1,80	1,51
50		1,72	1,45
mm	50	100	150
kg/m	3,37		

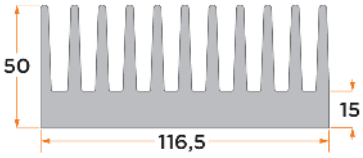
PR 211

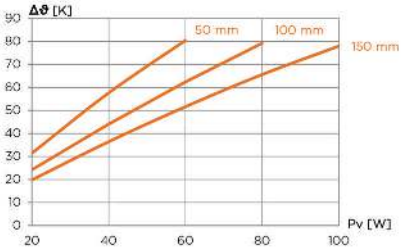




Pv [W]	RthK [K/W]		
20	1,54	1,15	0,95
40	1,40	1,07	0,90
60	1,33	1,02	0,83
80	1,25	0,95	0,78
100		0,90	0,75
mm	50	100	150
kg/m	9,16		

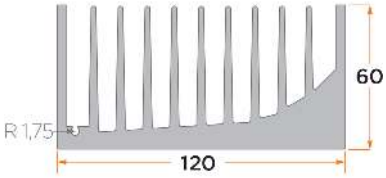
PR 176

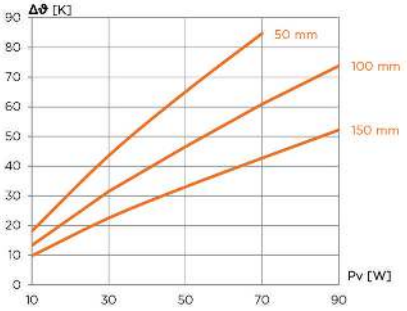




Pv [W]	RthK [K/W]		
20	1,57	1,21	0,99
40	1,44	1,10	0,91
60	1,34	1,04	0,86
80		0,99	0,82
100			0,78
mm	50	100	150
kg/m	8,65		

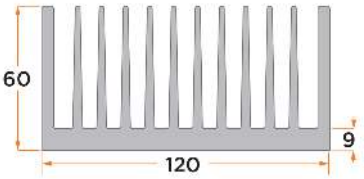
PR 373

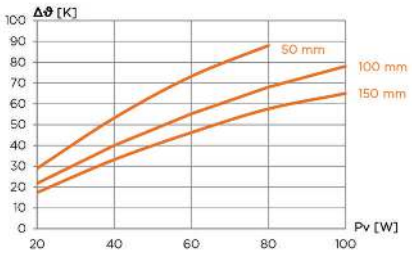




Pv [W]	RthK [K/W]		
10	1,81	1,33	0,98
30	1,45	1,05	0,75
50	1,30	0,93	0,66
70	1,21	0,87	0,61
90		0,82	0,58
mm	50	100	150
kg/m	8,43		

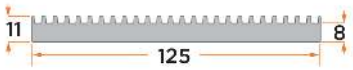
PR 403

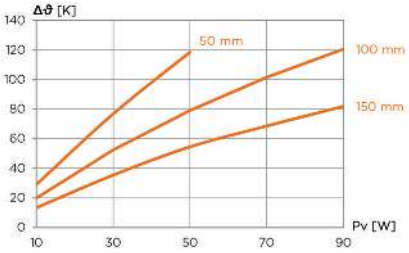




Pv [W]	RthK [K/W]		
20	1,45	1,09	0,87
40	1,33	1	0,83
60	1,22	0,92	0,77
80	1,1	0,85	0,72
100		0,78	0,65
mm	50	100	150
kg/m	8,40		

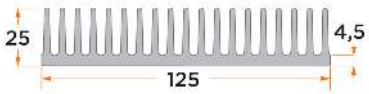
PR 331

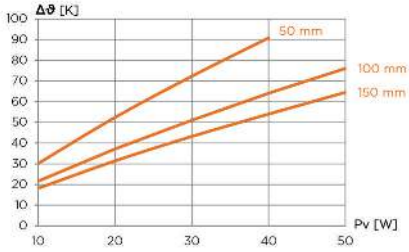




Pv [W]	RthK [K/W]		
10	2,91	1,99	1,34
30	2,56	1,75	1,18
50	2,37	1,58	1,09
70		1,45	0,98
90		1,34	0,91
mm	50	100	150
kg/m	3,07		

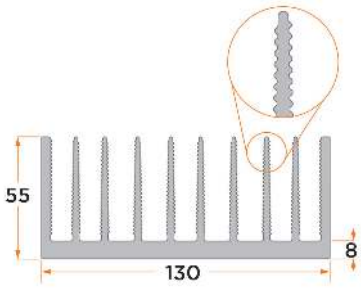
PR 228

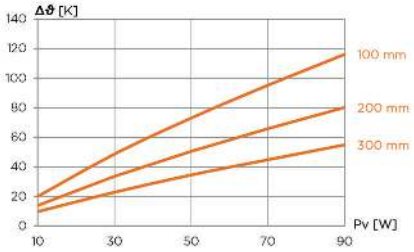




Pv [W]	RthK [K/W]		
10	3,02	2,17	1,82
20	2,62	1,86	1,57
30	2,41	1,70	1,44
40	2,27	1,60	1,35
50		1,52	1,29
mm	50	100	150
kg/m	4,22		

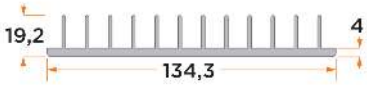
PR 377

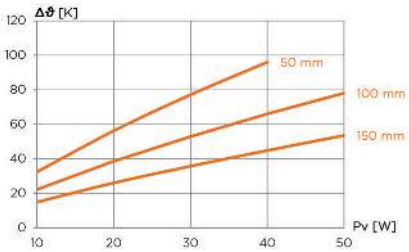




Pv [W]	RthK [K/W]		
10	2,00	1,39	0,97
30	1,62	1,12	0,76
50	1,46	1,01	0,69
70	1,36	0,94	0,64
90	1,29	0,89	0,61
mm	100	200	300
kg/m	6,63		

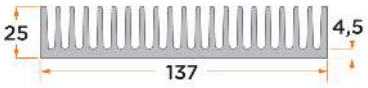
PR 378

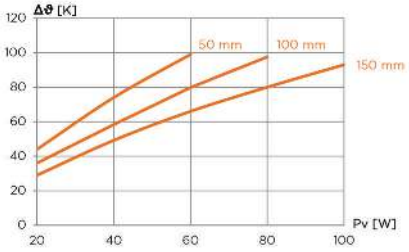




Pv [W]	RthK [K/W]		
10	3,24	2,22	1,49
20	2,81	1,93	1,30
30	2,57	1,76	1,19
40	2,40	1,65	1,12
50		1,56	1,07
mm	50	100	150
kg/m	2,22		

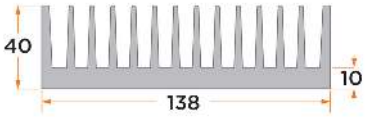
PR 287

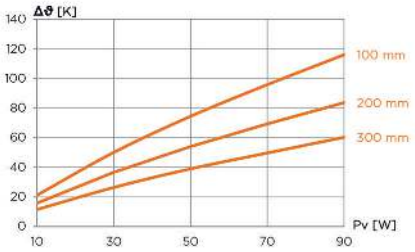




Pv [W]	RthK [K/W]		
20	2,20	1,80	1,45
40	1,85	1,46	1,23
60	1,65	1,33	1,10
80		1,22	1,00
100			0,93
mm	50	100	150
kg/m	4,68		

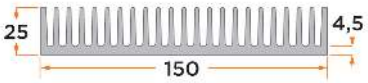
PR 381

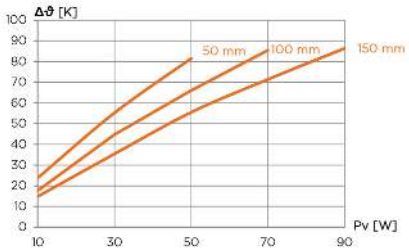




Pv [W]	RthK [K/W]		
10	2,12	1,58	1,15
30	1,67	1,22	0,88
50	1,49	1,08	0,78
70	1,37	0,99	0,71
90	1,29	0,93	0,67
mm	100	200	300
kg/m	7,29		

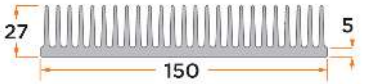
PR 148

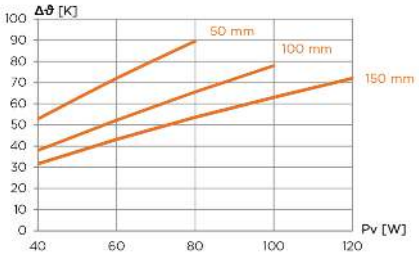




Pv [W]	RthK [K/W]		
10	2,38	1,76	1,48
30	1,84	1,49	1,18
50	1,63	1,32	1,11
70		1,22	1,02
90			0,96
mm	50	100	150
kg/m	5,17		

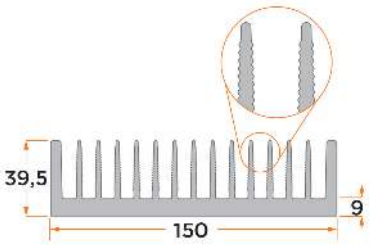
PR 160

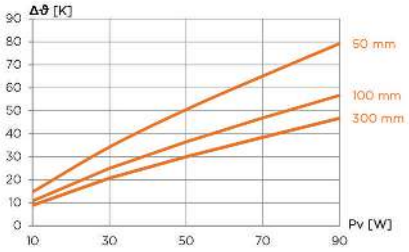




Pv [W]	RthK [K/W]		
40	1,32	0,95	0,79
60	1,20	0,87	0,72
80	1,12	0,82	0,67
100		0,78	0,63
120			0,60
mm	50	100	150
kg/m	8,01		

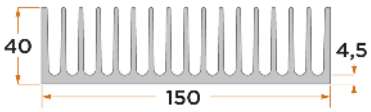
PR 369

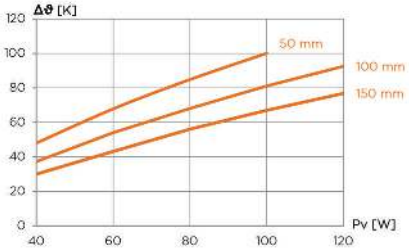




Pv [W]	RthK [K/W]		
10	1,47	1,08	0,89
30	1,14	0,83	0,69
50	1,01	0,73	0,60
70	0,93	0,67	0,55
90	0,88	0,63	0,52
mm	50	100	300
kg/m	7,27		

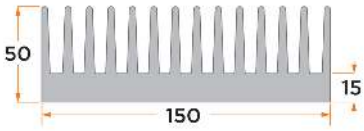
PR 242

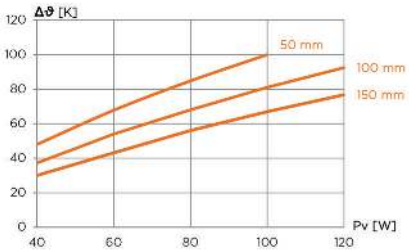




Pv [W]	RthK [K/W]		
40	1,20	0,93	0,75
60	1,13	0,90	0,72
80	1,06	0,85	0,70
100	1,00	0,81	0,67
120		0,77	0,64
mm	50	100	150
kg/m	6,28		

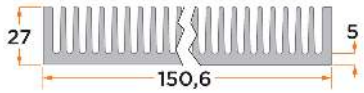
PR 172

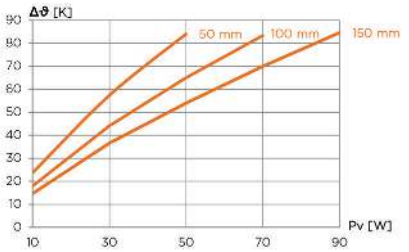




Pv [W]	RthK [K/W]		
40	1,19	0,97	0,80
60	1,10	0,90	0,74
80	1,05	0,84	0,70
100		0,80	0,66
120			0,63
mm	50	100	150
kg/m	11,97		

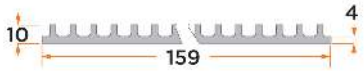
PR 162

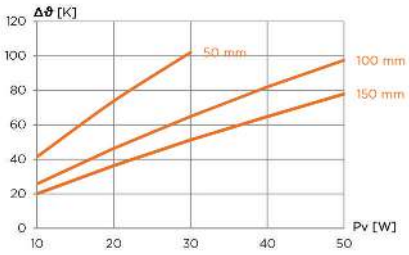




Pv [W]	RthK [K/W]		
10	2,37	1,79	1,46
30	1,91	1,47	1,22
50	1,68	1,30	1,08
70		1,19	1,00
90			0,94
mm	50	100	150
kg/m	6,11		

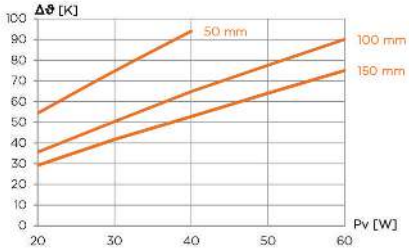
PR 310





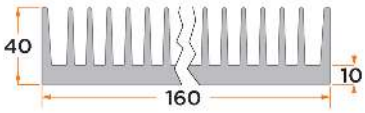
Pv [W]	RthK [K/W]		
10	4,15	2,58	2,00
20	3,69	2,32	1,82
30	3,40	2,16	1,71
40		2,05	1,62
50		1,95	1,56
mm	50	100	150
kg/m	2,51		

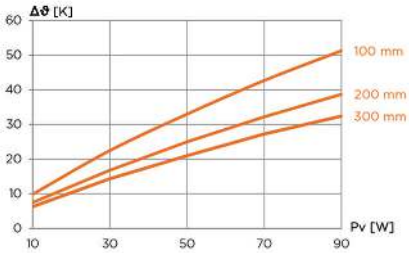
PR 158



Pv [W]	RthK [K/W]		
20	2,72	1,78	1,46
30	2,49	1,68	1,39
40	2,35	1,62	1,32
50		1,55	1,28
60		1,50	1,25
mm	50	100	150
kg/m	3,20		

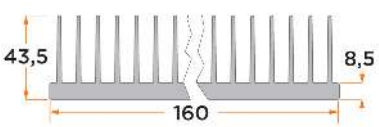
PR 169

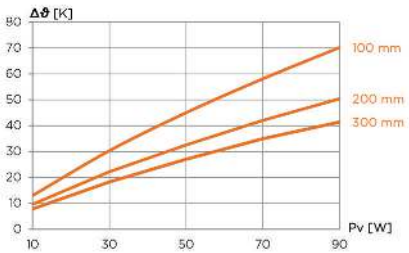




Pv [W]	RthK [K/W]		
10	0,99	0,75	0,63
30	0,75	0,56	0,48
50	0,66	0,50	0,42
70	0,61	0,46	0,39
90	0,57	0,43	0,36
mm	100	200	300
kg/m	17,70		

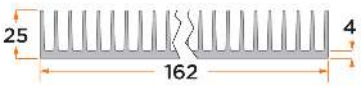
PR 384

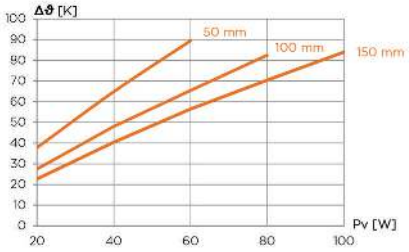




Pv [W]	RthK [K/W]		
10	1,30	0,96	0,78
30	1,01	0,74	0,61
50	0,90	0,65	0,54
70	0,83	0,60	0,50
90	0,78	0,56	0,46
mm	100	200	300
kg/m	6,75		

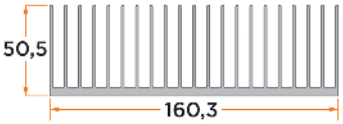
PR 174

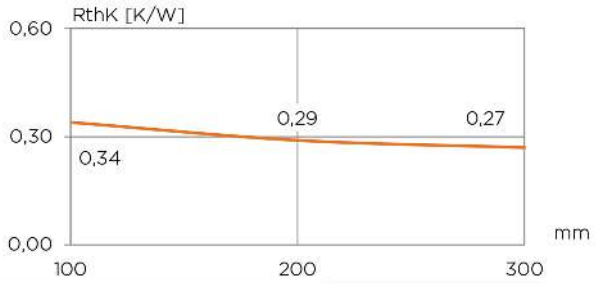




Pv [W]	RthK [K/W]		
20	1,89	1,37	1,13
40	1,62	1,20	1,01
60	1,49	1,09	0,94
80		1,03	0,88
100			0,84
mm	50	100	150
kg/m	4,01		

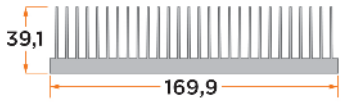
PR 413

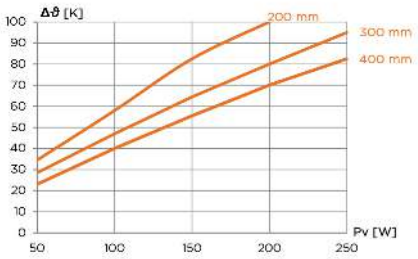




Gewicht / Weight	5,91 kg/m
Luftstrom / Airflow	1,0 m/s

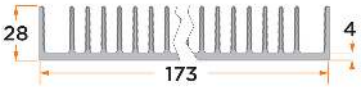
PR 414

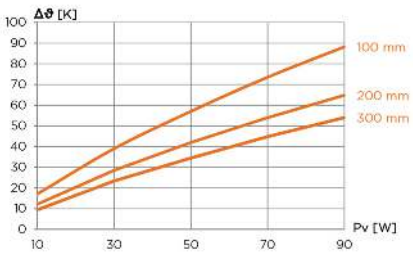




Pv [W]	RthK [K/W]		
50	0,69	0,57	0,46
100	0,58	0,47	0,40
150	0,55	0,43	0,37
200	0,52	0,40	0,35
250		0,38	0,33
mm	200	300	400
kg/m	6,78		

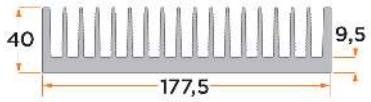
PR 385

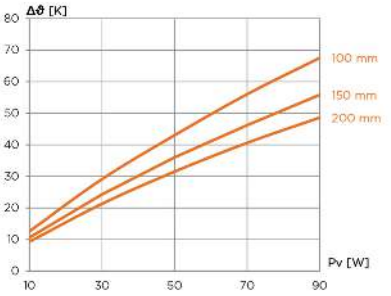




Pv [W]	RthK [K/W]		
10	1,71	1,22	0,94
30	1,30	0,95	0,78
50	1,14	0,84	0,69
70	1,05	0,77	0,64
90	0,98	0,72	0,60
mm	100	200	300
kg/m	4,22		

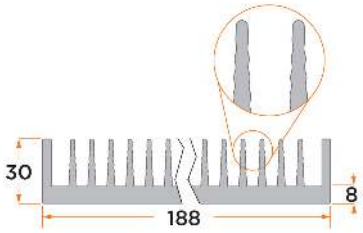
PR 401

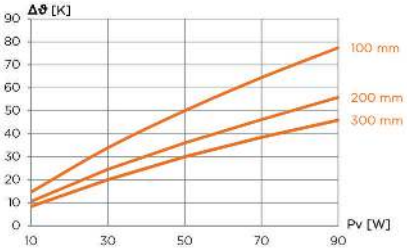




Pv [W]	RthK [K/W]		
10	1,26	1,06	0,93
30	0,97	0,81	0,71
50	0,86	0,72	0,63
70	0,8	0,66	0,58
90	0,75	0,62	0,54
mm	100	150	200
g	870	1300	1730

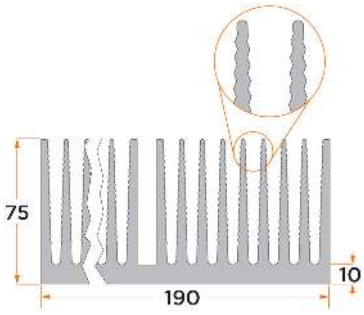
PR 371

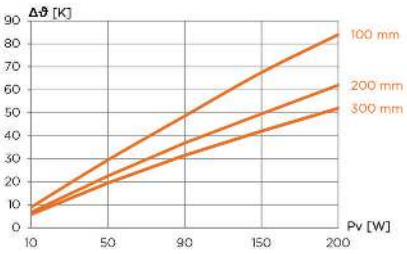




Pv [W]	RthK [K/W]		
10	1,47	1,06	0,84
30	1,13	0,82	0,67
50	1,00	0,72	0,60
70	0,92	0,66	0,55
90	0,86	0,62	0,51
mm	100	200	300
kg/m	7,38		

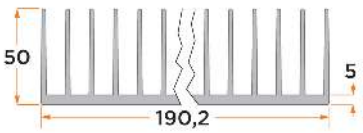
PR 379

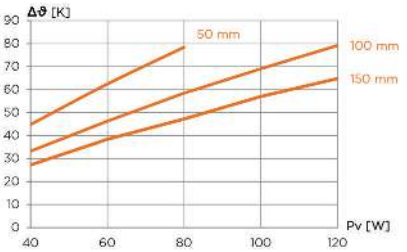




Pv [W]	RthK [K/W]		
10	0,90	0,68	0,58
50	0,59	0,45	0,39
90	0,54	0,41	0,35
150	0,45	0,33	0,28
200	0,42	0,31	0,26
mm	100	200	300
kg/m	17,89		

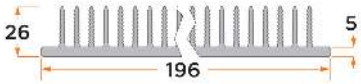
PR 163

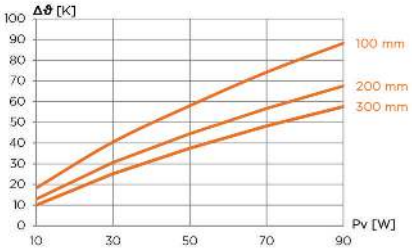




Pv [W]	RthK [K/W]		
40	1,12	0,83	0,68
60	1,04	0,77	0,64
80	0,98	0,73	0,59
100		0,69	0,57
120		0,66	0,54
mm	50	100	150
kg/m	6,92		

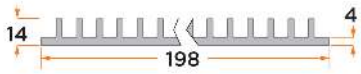
PR 387

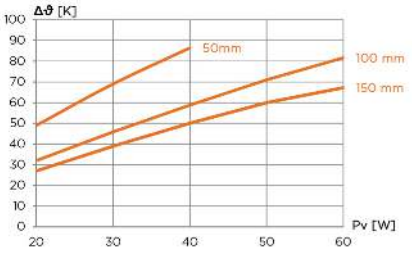




Pv [W]	RthK [K/W]		
10	1,83	1,30	1,00
30	1,35	1,02	0,84
50	1,16	0,89	0,75
70	1,06	0,81	0,69
90	0,98	0,75	0,64
mm	100	200	300
kg/m	5,63		

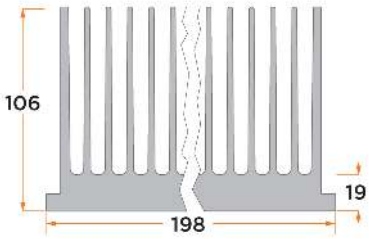
PR 199

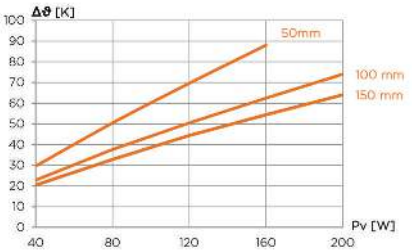




Pv [W]	RthK [K/W]		
20	2,45	1,60	1,35
30	2,30	1,53	1,30
40	2,16	1,47	1,25
50		1,42	1,20
60		1,36	1,12
mm	50	100	150
kg/m	3,50		

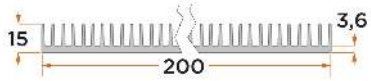
PR 392

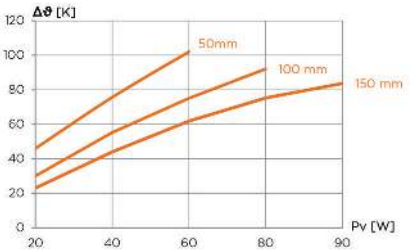




Pv [W]	RthK [K/W]		
40	0,74	0,57	0,51
80	0,63	0,47	0,41
120	0,58	0,42	0,37
160	0,55	0,39	0,34
200		0,37	0,32
mm	50	100	150
kg/m	22,30		

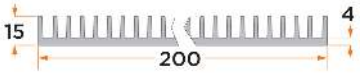
PR 240

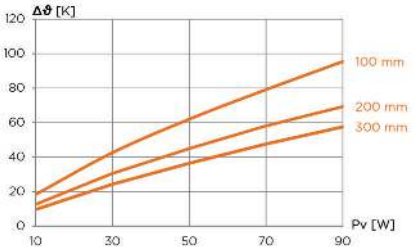




Pv [W]	RthK [K/W]		
20	2,30	1,50	1,15
40	1,89	1,38	1,10
60	1,70	1,25	1,03
80		1,15	0,94
90			0,93
mm	50	100	150
kg/m	3,45		

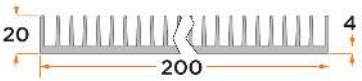
PR 382

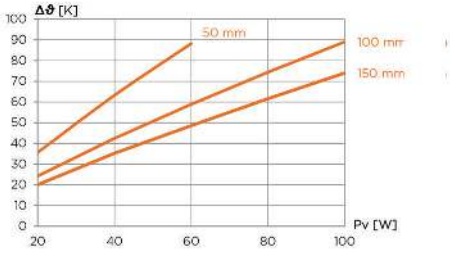




Pv [W]	RthK [K/W]		
10	1,84	1,27	0,97
30	1,42	1,02	0,81
50	1,24	0,90	0,73
70	1,13	0,83	0,68
90	1,06	0,77	0,64
mm	100	200	300
kg/m	3,90		

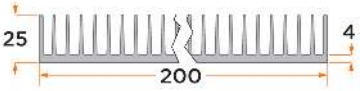
PR 103

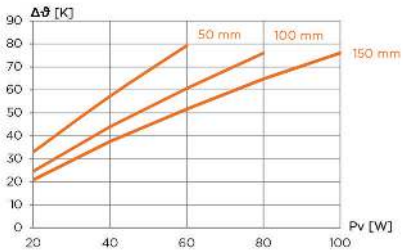




Pv [W]	RthK [K/W]		
20	1,78	1,21	1,00
40	1,58	1,06	0,88
60	1,47	0,98	0,81
80		0,93	0,77
100		0,89	0,74
mm	50	100	150
kg/m	4,25		

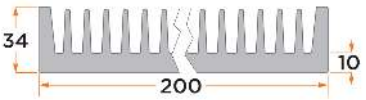
PR 165

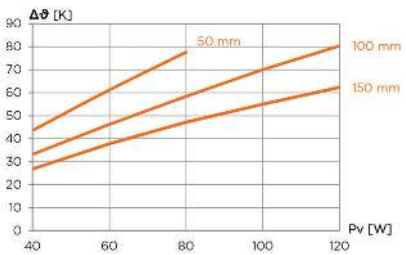




Pv [W]	RthK [K/W]		
20	1,65	1,23	1,04
40	1,43	1,10	0,94
60	1,32	1,01	0,86
80		0,95	0,81
100			0,76
mm	50	100	150
kg/m	4,76		

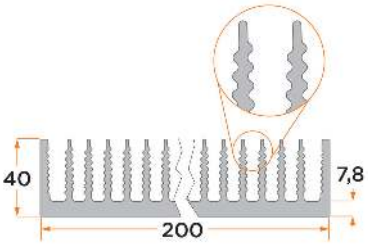
PR 328

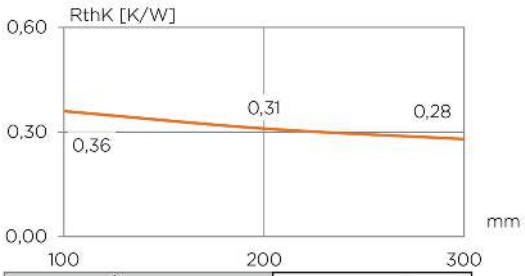




Pv [W]	RthK [K/W]		
40	1,09	0,83	0,67
60	1,02	0,77	0,63
80	0,97	0,73	0,59
100		0,70	0,55
120		0,67	0,52
mm	50	100	150
kg/m	10,03		

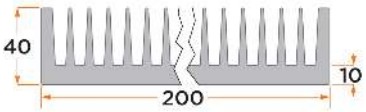
PR 370

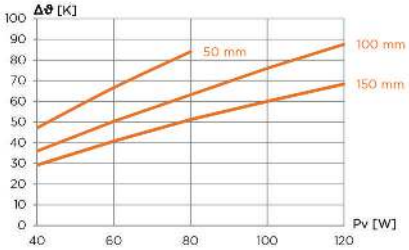




Gewicht / Weight	9,61 kg/m
Luftstrom / Airflow	1,0 m/s

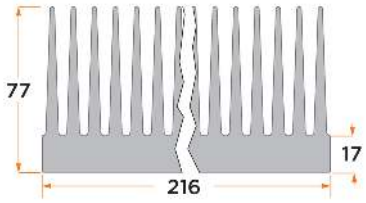
PR 170

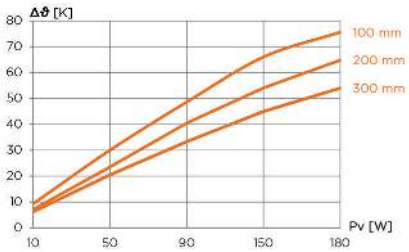




Pv [W]	RthK [K/W]		
40	1,18	0,90	0,73
60	1,11	0,84	0,68
80	1,05	0,79	0,64
100		0,76	0,60
120		0,73	0,57
mm	50	100	150
kg/m	10,68		

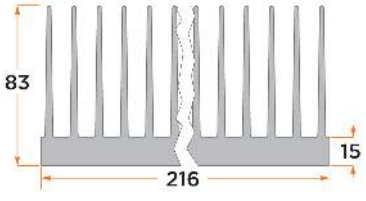
PR 375

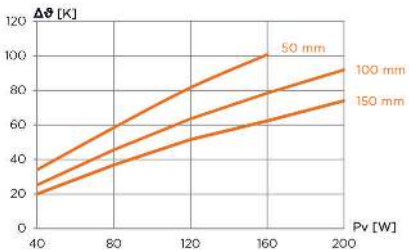




Pv [W]	RthK [K/W]		
10	0,93	0,71	0,62
50	0,60	0,47	0,41
90	0,54	0,45	0,37
150	0,44	0,36	0,30
180	0,42	0,36	0,30
mm	100	200	300
kg/m	23,96		

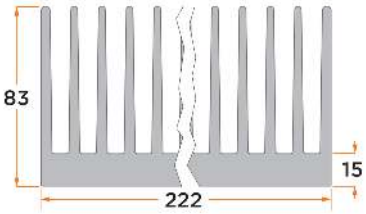
PR 236

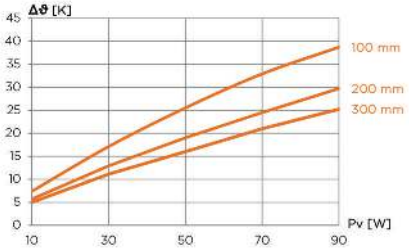




Pv [W]	RthK [K/W]		
40	0,85	0,63	0,50
80	0,73	0,57	0,46
120	0,68	0,53	0,43
160	0,63	0,49	0,39
200		0,46	0,37
mm	50	100	150
kg/m	18,69		

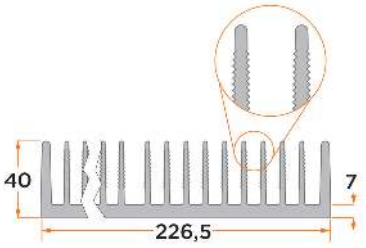
PR 391

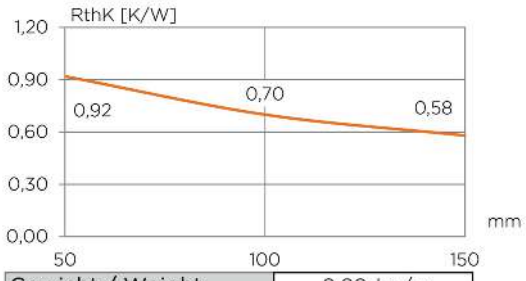




Pv [W]	RthK [K/W]		
10	0,74	0,57	0,50
30	0,57	0,43	0,37
50	0,51	0,38	0,32
70	0,47	0,35	0,30
90	0,43	0,33	0,28
mm	100	200	300
kg/m	22,35		

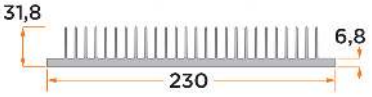
PR 149

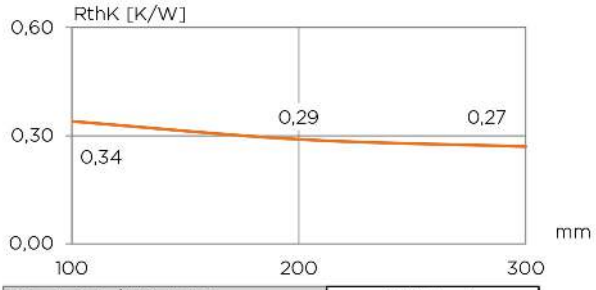




Gewicht / Weight	9,88 kg/m
Luftstrom / Airflow	1,0 m/s

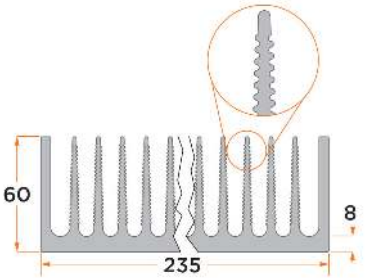
PR 409

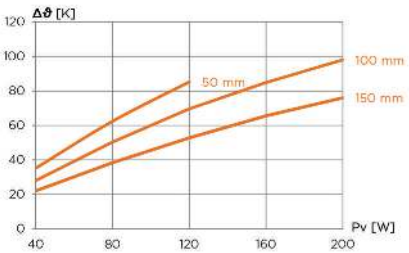




Gewicht / Weight	6,72 kg/m
Luftstrom / Airflow	1,0 m/s

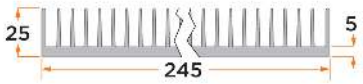
PR 235

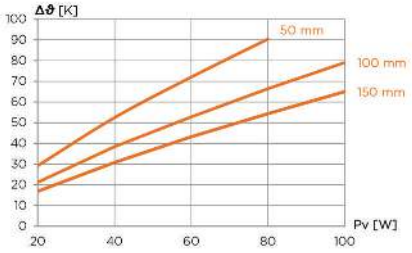




Pv [W]	RthK [K/W]		
40	0,88	0,70	0,55
80	0,78	0,63	0,48
120	0,71	0,58	0,44
160		0,53	0,41
200		0,49	0,38
mm	50	100	150
kg/m	15,23		

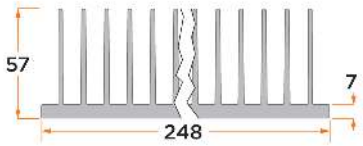
PR 166

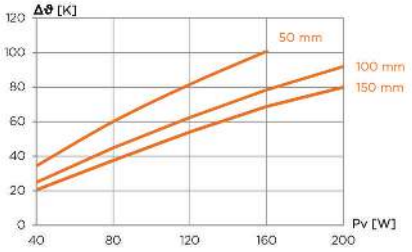




Pv [W]	RthK [K/W]		
20	1,46	1,06	0,84
40	1,31	0,96	0,77
60	1,20	0,88	0,72
80	1,13	0,83	0,68
100		0,79	0,65
mm	50	100	150
kg/m	6,12		

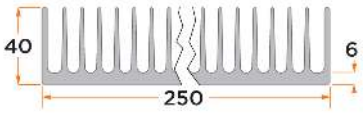
PR 189

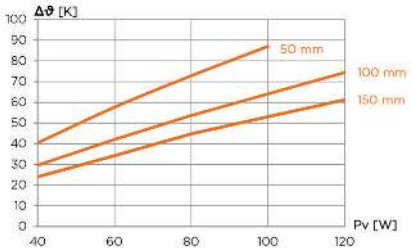




Pv [W]	RthK [K/W]		
40	0,86	0,62	0,51
80	0,75	0,56	0,47
120	0,68	0,52	0,45
160	0,63	0,49	0,43
200		0,46	0,40
mm	50	100	150
kg/m	11,47		

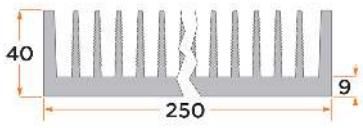
PR 175

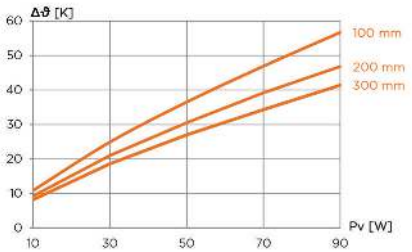




Pv [W]	RthK [K/W]		
40	1,01	0,74	0,60
60	0,96	0,70	0,57
80	0,91	0,67	0,56
100	0,87	0,64	0,53
120		0,62	0,51
mm	50	100	150
kg/m	10,21		

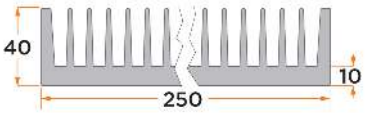
PR 396

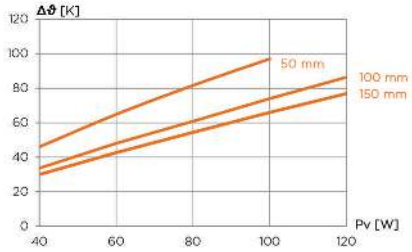




Pv [W]	RthK [K/W]		
10	1,09	0,93	0,82
30	0,83	0,70	0,62
50	0,73	0,61	0,54
70	0,67	0,56	0,49
90	0,63	0,52	0,46
mm	100	200	300
kg/m	12,27		

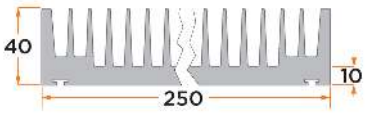
PR 325

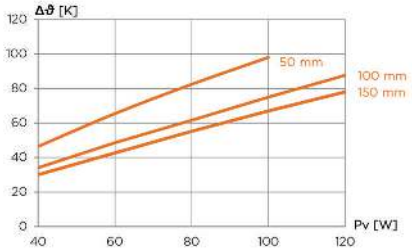




Pv [W]	RthK [K/W]		
40	1,15	0,84	0,75
60	1,08	0,80	0,71
80	1,02	0,76	0,68
100	0,97	0,74	0,66
120		0,72	0,64
mm	50	100	150
kg/m	13,22		

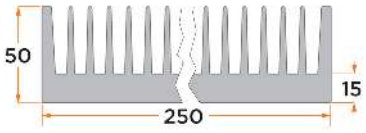
PR 201

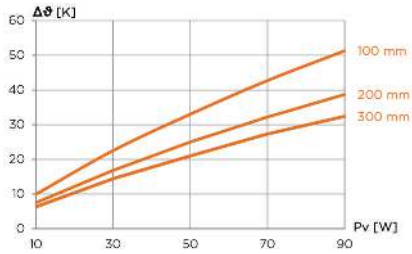




Pv [W]	RthK [K/W]		
40	1,16	0,85	0,75
60	1,09	0,81	0,71
80	1,03	0,77	0,69
100	0,98	0,75	0,67
120		0,73	0,65
mm	50	100	150
kg/m	13,58		

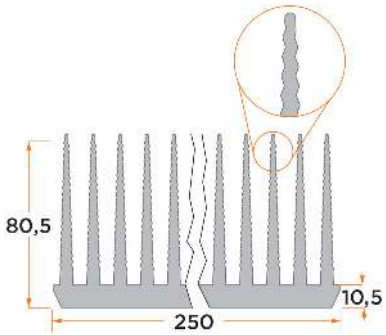
PR 372

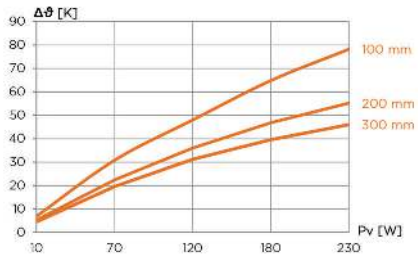




Pv [W]	RthK [K/W]		
10	0,99	0,75	0,63
30	0,75	0,56	0,48
50	0,66	0,50	0,42
70	0,61	0,46	0,39
90	0,57	0,43	0,36
mm	100	200	300
kg/m	17,70		

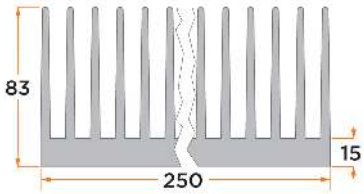
PR 380

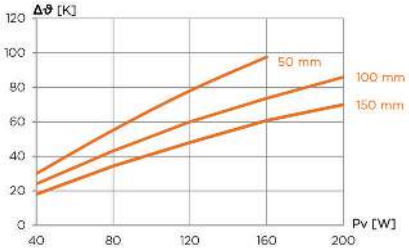




Pv [W]	RthK [K/W]		
10	0,69	0,53	0,45
70	0,44	0,32	0,28
120	0,40	0,30	0,26
180	0,36	0,26	0,22
230	0,34	0,24	0,20
mm	100	200	300
kg/m	21,34		

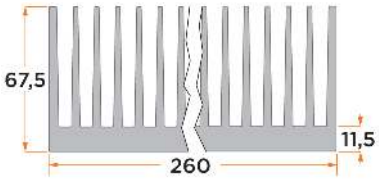
PR 237

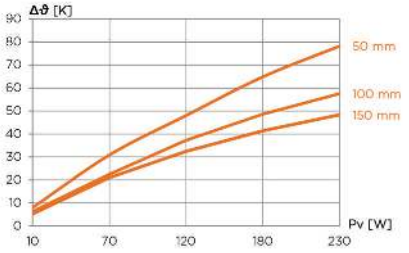




Pv [W]	RthK [K/W]		
40	0,75	0,60	0,45
80	0,69	0,54	0,43
120	0,65	0,50	0,40
160	0,61	0,46	0,38
200		0,43	0,35
mm	50	100	150
kg/m	24,68		

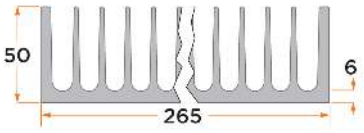
PR 374

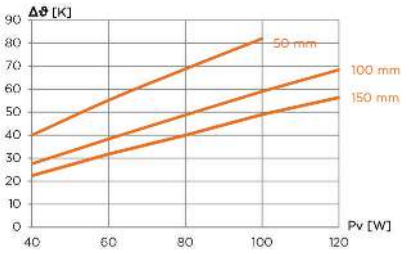




Pv [W]	RthK [K/W]		
10	0,79	0,62	0,52
70	0,44	0,32	0,30
120	0,40	0,31	0,27
180	0,36	0,27	0,23
230	0,34	0,25	0,21
mm	50	100	150
kg/m	20,62		

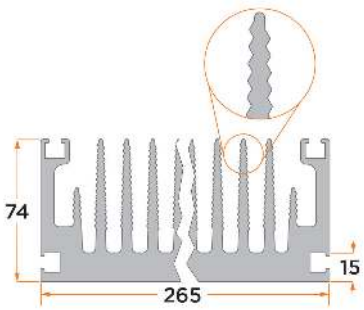
PR 164

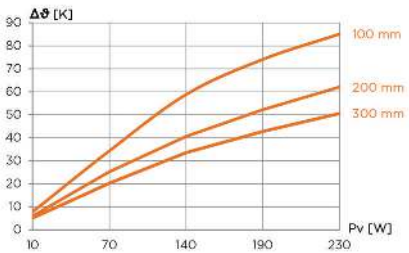




Pv [W]	RthK [K/W]		
40	1,00	0,69	0,56
60	0,92	0,64	0,53
80	0,86	0,61	0,50
100	0,82	0,59	0,49
120		0,57	0,47
mm	50	100	150
kg/m	12,70		

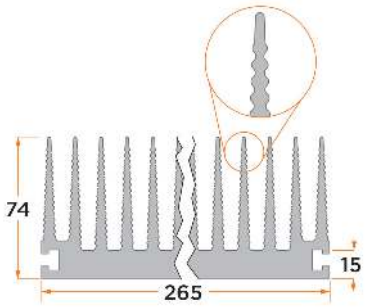
PR 376

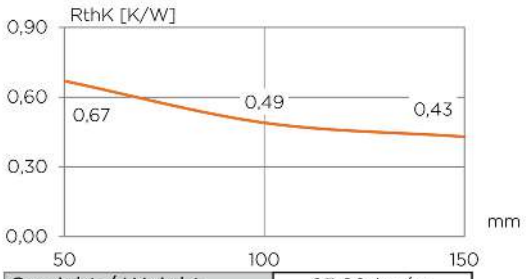




Pv [W]	RthK [K/W]		
10	0,78	0,60	0,51
70	0,49	0,36	0,29
140	0,42	0,29	0,24
190	0,39	0,28	0,23
230	0,37	0,27	0,22
mm	100	200	300
kg/m	25,04		

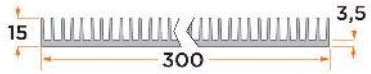
PR 186

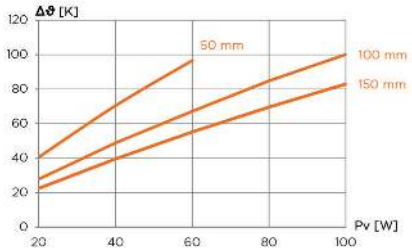




Gewicht / Weight	23,82 kg/m
Luftstrom / Airflow	1,0 m/s

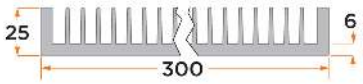
PR 247

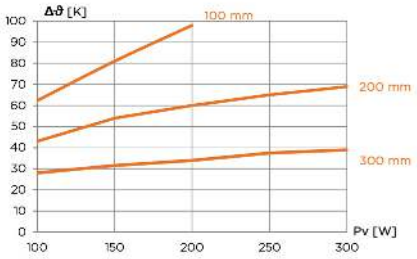




Pv [W]	RthK [K/W]		
20	2,03	1,39	1,12
40	1,76	1,22	0,99
60	1,61	1,12	0,92
80		1,06	0,87
100		1,00	0,83
mm	50	100	150
kg/m	5,43		

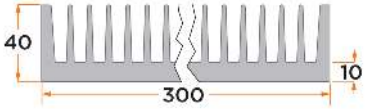
PR 326

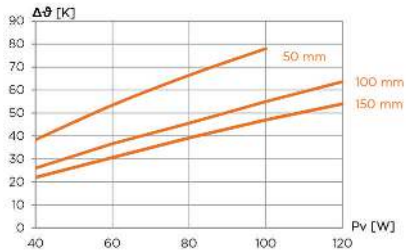




Pv [W]	RthK [K/W]		
100	0,62	0,43	0,28
150	0,54	0,36	0,21
200	0,49	0,30	0,17
250		0,26	0,15
300		0,23	0,13
mm	100	200	300
kg/m	9,01		

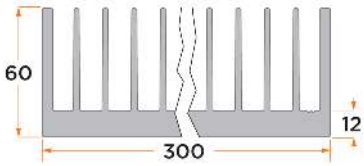
PR 171

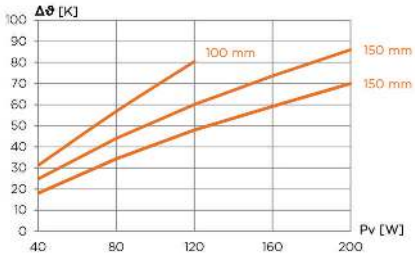




Pv [W]	RthK [K/W]		
40	0,96	0,65	0,55
60	0,89	0,61	0,51
80	0,83	0,57	0,49
100	0,78	0,55	0,47
120		0,53	0,45
mm	50	100	150
kg/m	15,45		

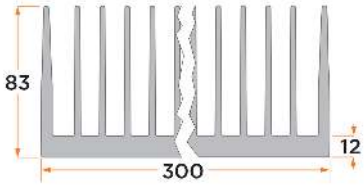
PR 360

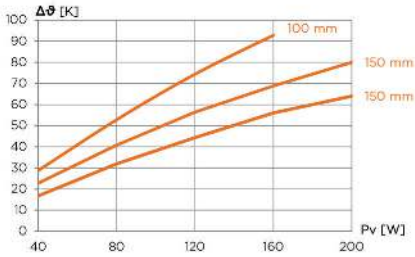




Pv [W]	RthK [K/W]		
40	0,78	0,62	0,45
80	0,71	0,55	0,43
120	0,67	0,50	0,40
160		0,46	0,37
200		0,43	0,35
mm	100	150	200
kg/m	18,33		

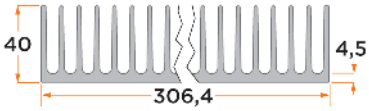
PR 304

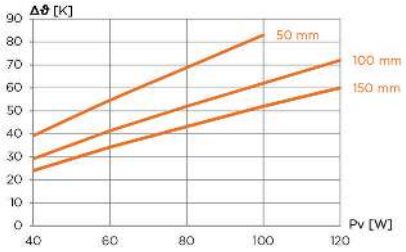




Pv [W]	RthK [K/W]		
40	0,72	0,57	0,42
80	0,66	0,51	0,40
120	0,62	0,47	0,37
160	0,58	0,43	0,35
200		0,40	0,32
mm	100	150	200
kg/m	23,88		

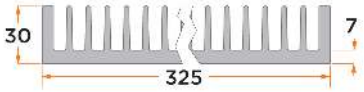
PR 177

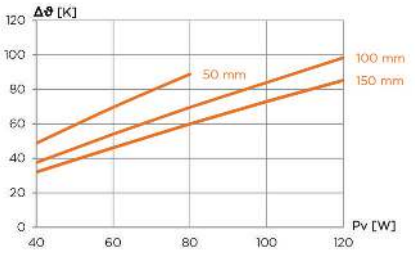




Pv [W]	RthK [K/W]		
40	0,98	0,73	0,60
60	0,91	0,69	0,57
80	0,86	0,65	0,54
100	0,83	0,62	0,52
120		0,60	0,50
mm	50	100	150
kg/m	12,38		

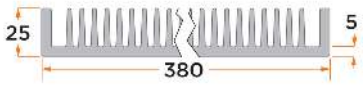
PR 298

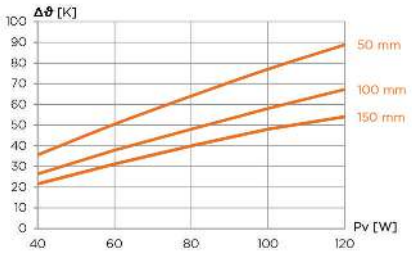




Pv [W]	RthK [K/W]		
40	1,22	0,94	0,80
60	1,16	0,90	0,77
80	1,11	0,87	0,75
100		0,84	0,73
120		0,82	0,71
mm	50	100	150
kg/m	12,44		

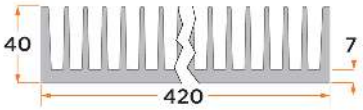
PR 178

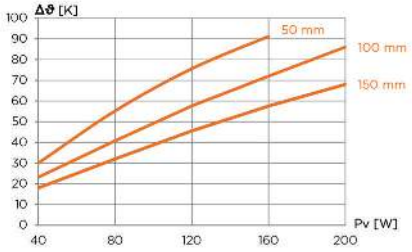




Pv [W]	RthK [K/W]		
40	0,89	0,66	0,54
60	0,84	0,63	0,52
80	0,80	0,60	0,50
100	0,77	0,58	0,48
120	0,74	0,56	0,45
mm	50	100	150
kg/m	12,45		

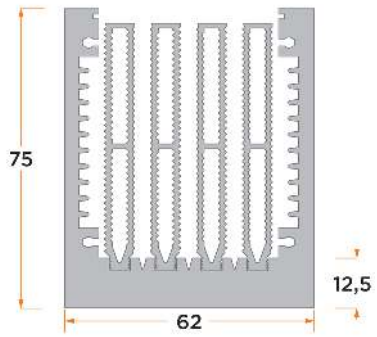
PR 300





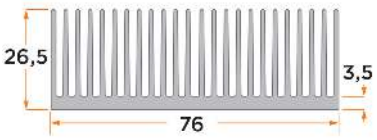
Pv [W]	RthK [K/W]		
40	0,75	0,58	0,45
80	0,69	0,51	0,40
120	0,63	0,48	0,38
160	0,57	0,45	0,36
200		0,43	0,34
mm	50	100	150
kg/m	19,32		

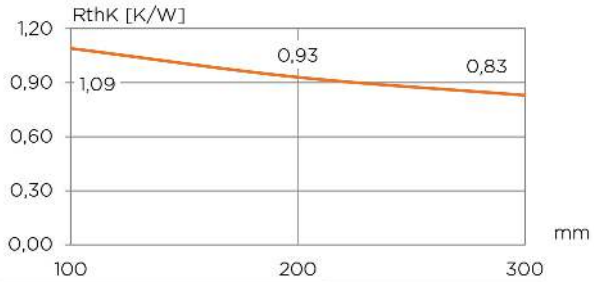
PR 715



Gewicht / Weight	5,66 kg/m
Luftstrom / Airflow	5,0 m/s

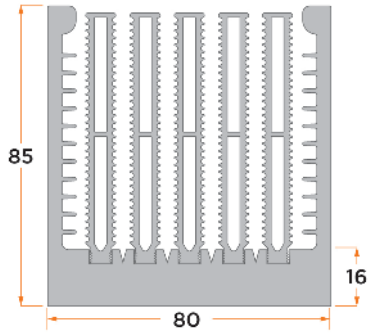
PR 417

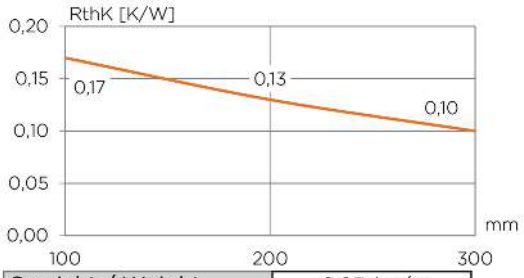




Gewicht / Weight	2,51 kg/m
Luftstrom / Airflow	1,0 m/s

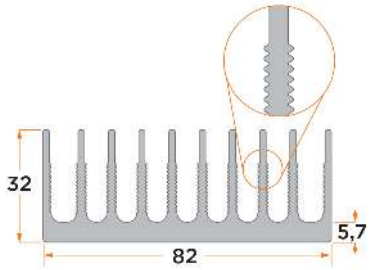
PR 716





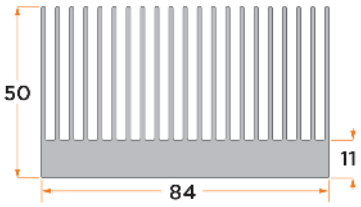
Gewicht / Weight	8,83 kg/m
Luftstrom / Airflow	5,0 m/s

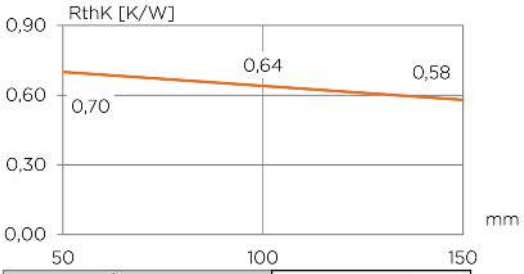
PR 367



Gewicht / Weight	2,87 kg/m
Luftstrom / Airflow	1,0 m/s

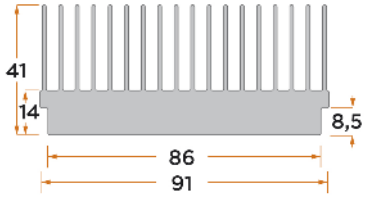
PR 393

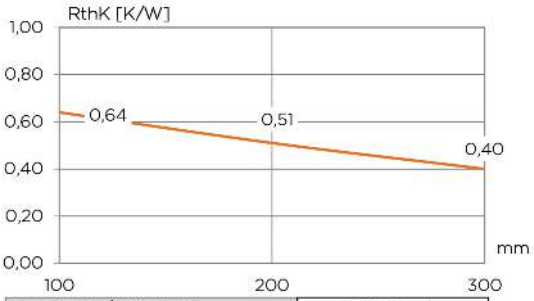




Gewicht / Weight	5,15 kg/m
Luftstrom / Airflow	1,0 m/s

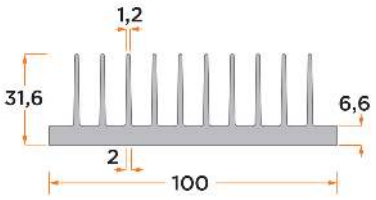
PR 404

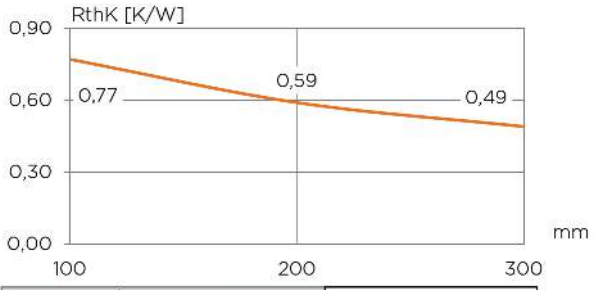




Gewicht / Weight	4,89 kg/m
Luftstrom / Airflow	1,0 m/s

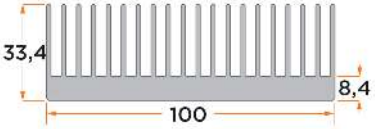
PR 408

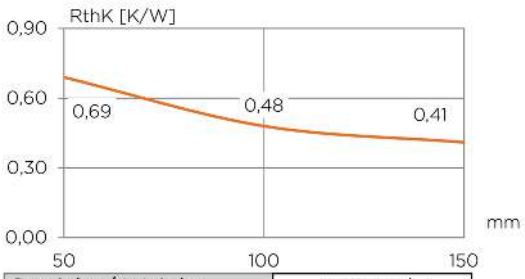




Gewicht / Weight	2,85 kg/m
Luftstrom / Airflow	1,0 m/s

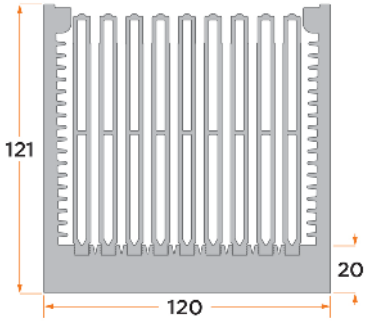
PR 399

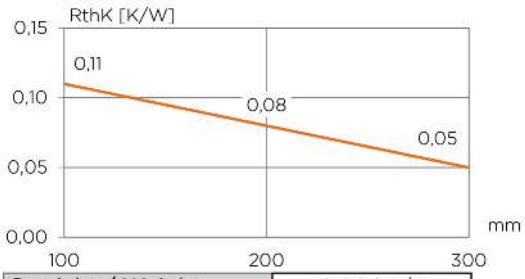




Gewicht / Weight	4,20 kg/m
Luftstrom / Airflow	1,0 m/s

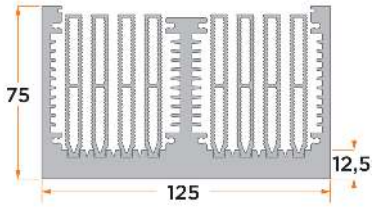
PR 717

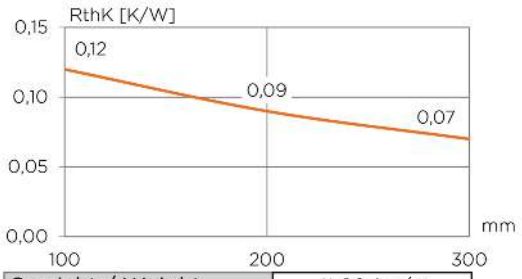




Gewicht / Weight	18,86 kg/m
Luftstrom / Airflow	5,0 m/s

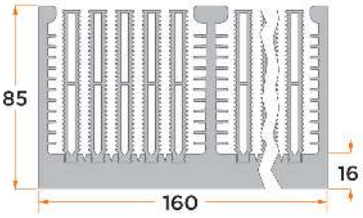
PR 718

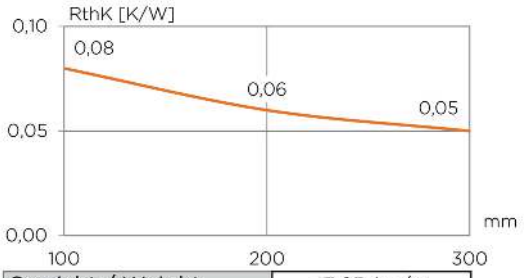




Gewicht / Weight	11,02 kg/m
Luftstrom / Airflow	5,0 m/s

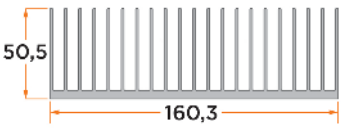
PR 719

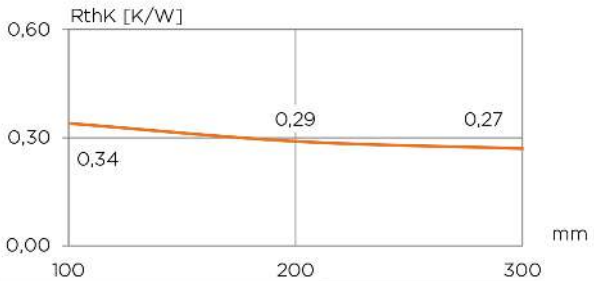




Gewicht / Weight	17,25 kg/m
Luftstrom / Airflow	5,0 m/s

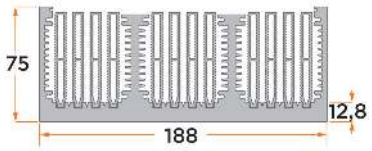
PR 413

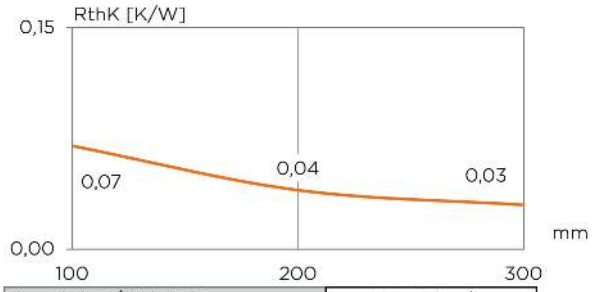




Gewicht / Weight	5,91 kg/m
Luftstrom / Airflow	1,0 m/s

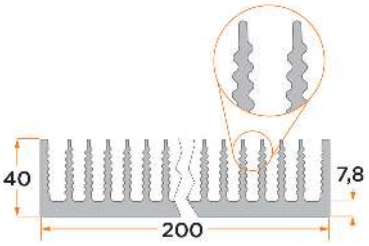
PR 721

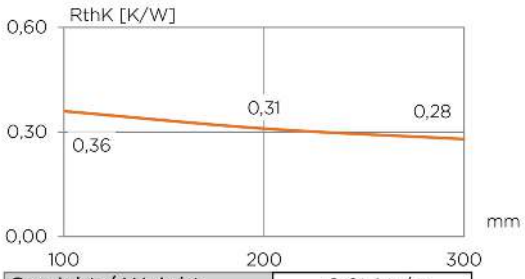




Gewicht / Weight	16,45 kg/m
Luftstrom / Airflow	5,0 m/s

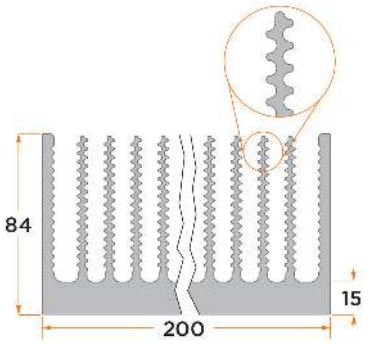
PR 370

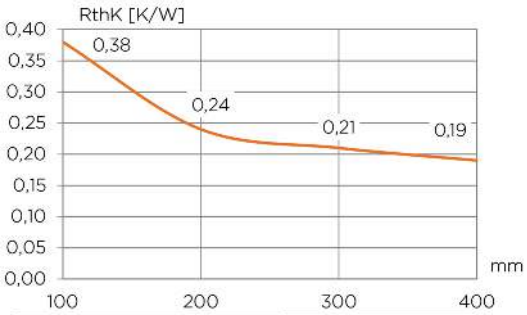




Gewicht / Weight	9,61 kg/m
Luftstrom / Airflow	1,0 m/s

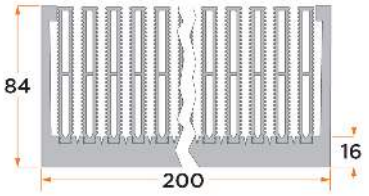
PR 327

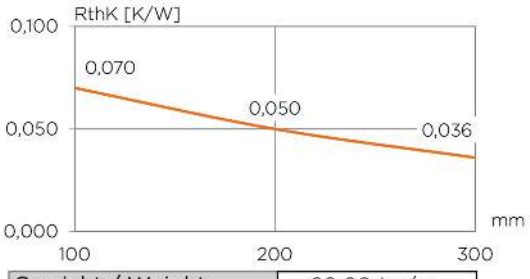




Gewicht / Weight	17,73 kg/m
Luftstrom / Airflow	5,0 m/s

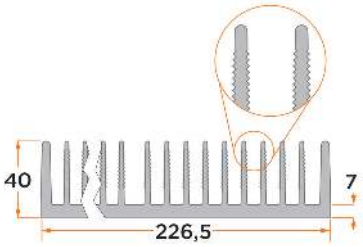
PR 253

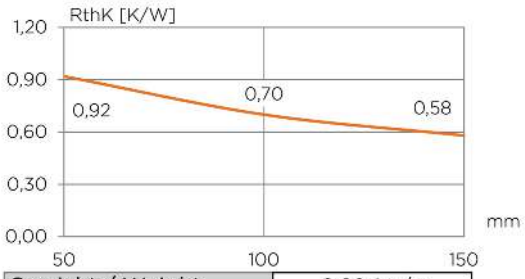




Gewicht / Weight	20,08 kg/m
Luftstrom / Airflow	5,0 m/s

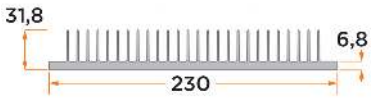
PR 149

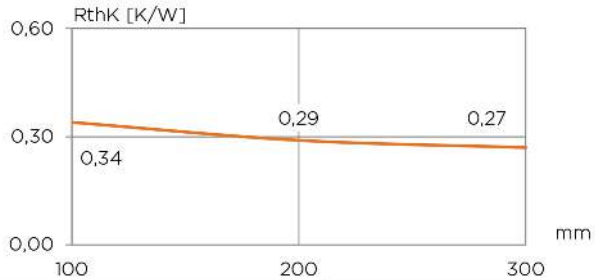




Gewicht / Weight	9,88 kg/m
Luftstrom / Airflow	1,0 m/s

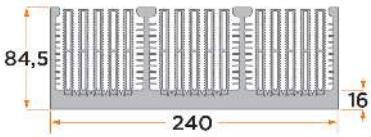
PR 409

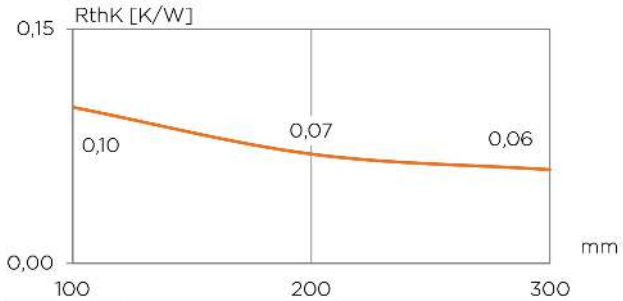




Gewicht / Weight	6,72 kg/m
Luftstrom / Airflow	1,0 m/s

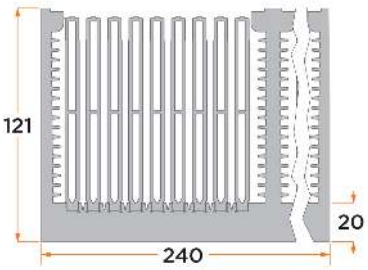
PR 712

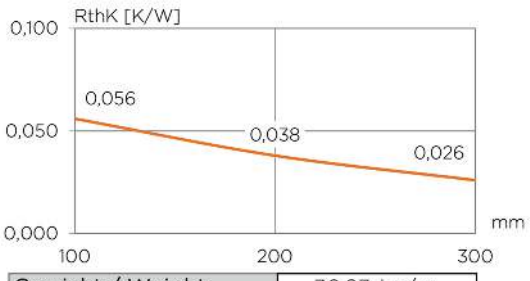




Gewicht / Weight	25,43 kg/m
Luftstrom / Airflow	5,0 m/s

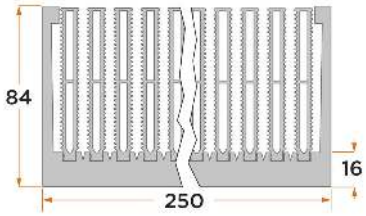
PR 720

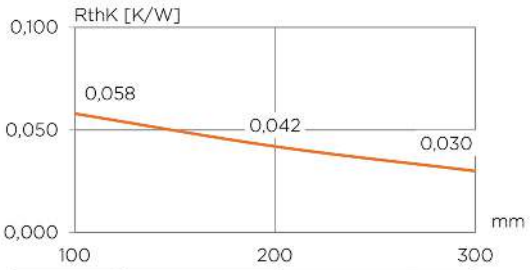




Gewicht / Weight	36,93 kg/m
Luftstrom / Airflow	5,0 m/s

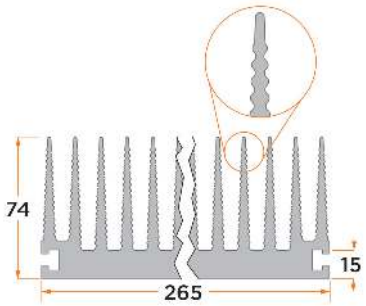
PR 252

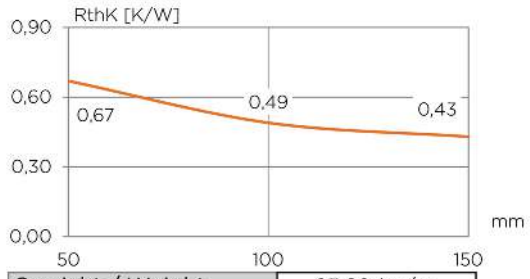




Gewicht / Weight	24,96 kg/m
Luftstrom / Airflow	5,0 m/s

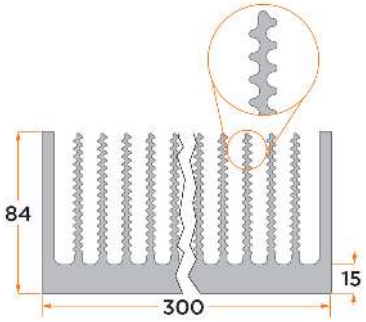
PR 186

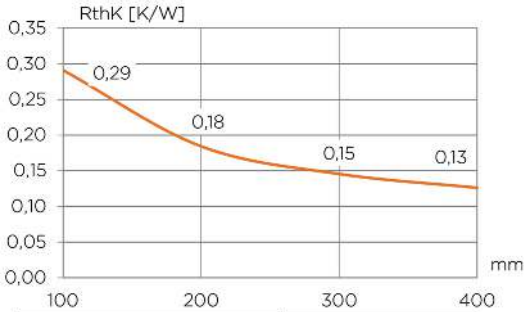




Gewicht / Weight	23,82 kg/m
Luftstrom / Airflow	1,0 m/s

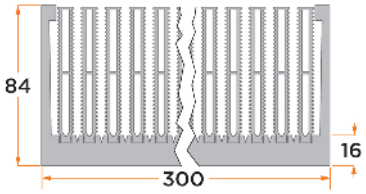
PR 368

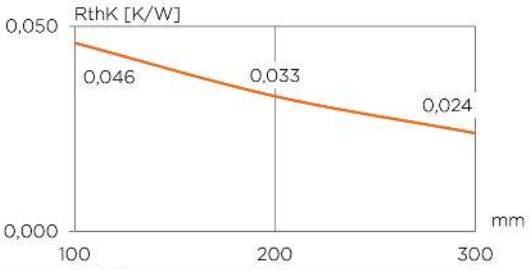




Gewicht / Weight	26,63 kg/m
Luftstrom / Airflow	5,0 m/s

PR 254

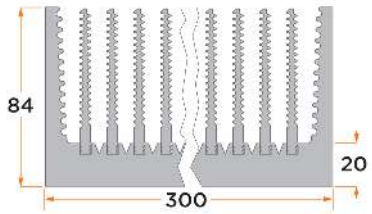


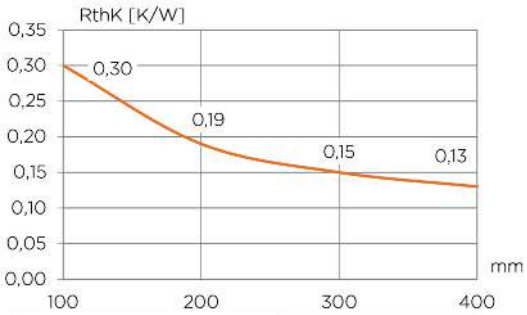


Gewicht / Weight	30,04 kg/m
Luftstrom / Airflow	5,0 m/s

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

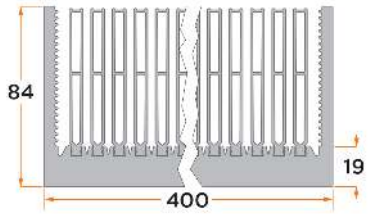
PR 255

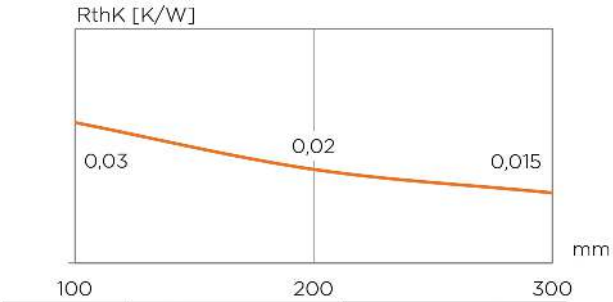




Gewicht / Weight	30,07 kg/m
Luftstrom / Airflow	5,0 m/s

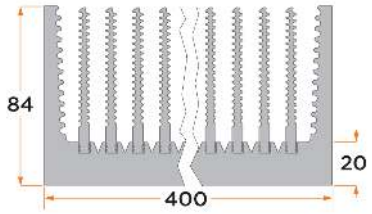
PR 750

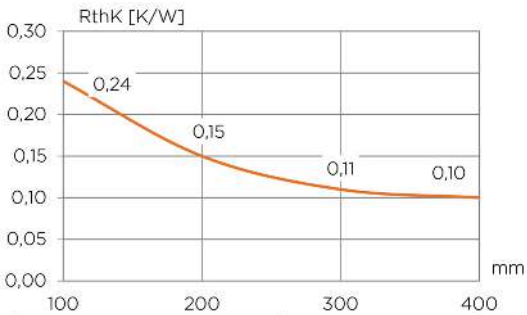




Gewicht / Weight	38,03 kg/m
Luftstrom / Airflow	5,0 m/s

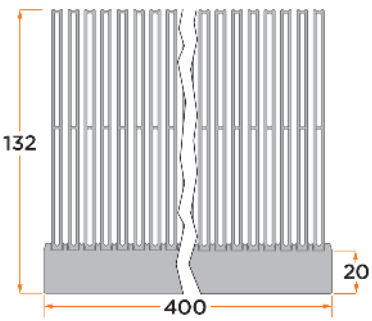
PR 256



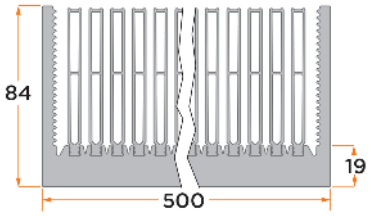


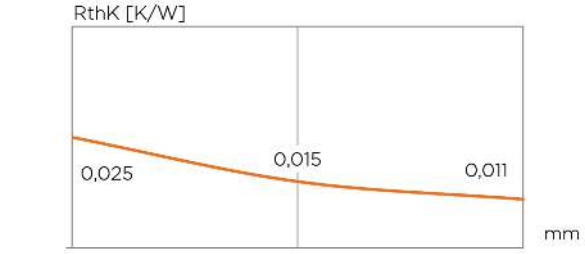
Gewicht / Weight	39,58 kg/m
Luftstrom / Airflow	5,0 m/s

PR 264



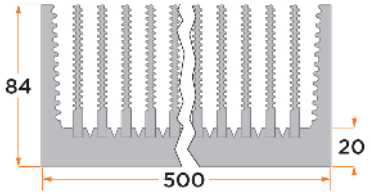
PR 751

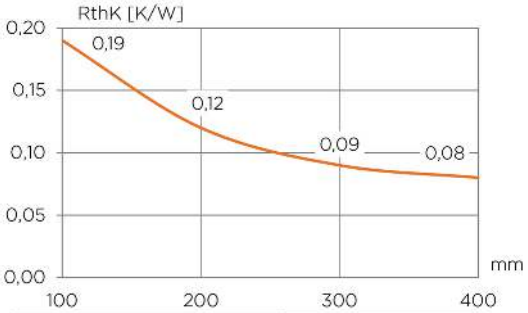




Gewicht / Weight	47,26 kg/m
Luftstrom / Airflow	5,0 m/s

PR 257





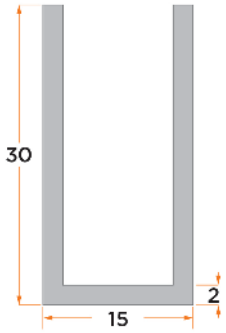
Gewicht / Weight	49,02 kg/m
Luftstrom / Airflow	5,0 m/s

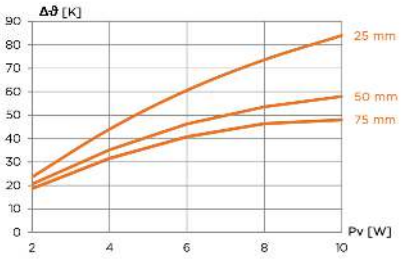
Burr at the profile's cut ends is always brushed off, leaving no sharp edges!

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

On the following pages you will find further standard profiles with different designs and applications.

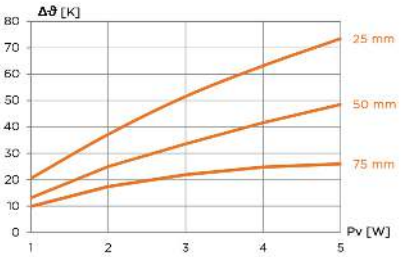
PR 15





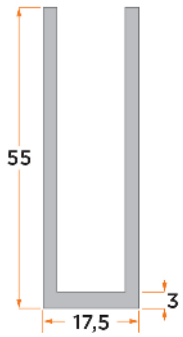
Pv [W]	RthK [K/W]		
2	11,8	10,3	9,3
4	11,0	8,8	7,9
6	10,1	7,7	6,8
8	9,2	6,7	5,8
10	8,4	5,8	4,8
mm	25	50	75
kg/m	0,36		

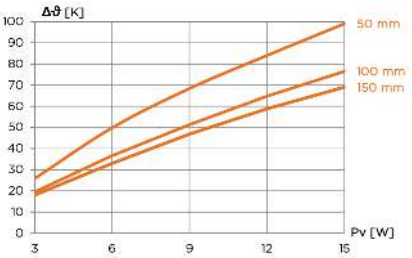
PR 17



Pv [W]	RthK [K/W]		
1	20,5	13,1	9,9
2	18,6	12,5	8,7
3	17,2	11,2	7,3
4	15,8	10,4	6,2
5	14,7	9,7	5,2
mm	25	50	75
kg/m	0,16		

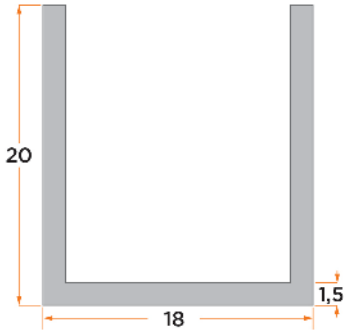
PR 16

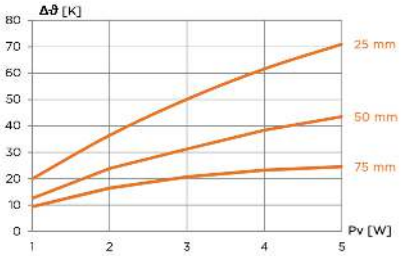




Pv [W]	RthK [K/W]		
3	8,6	6,5	6,0
6	8,3	6,1	5,5
9	7,6	5,7	5,2
12	7,0	5,4	4,9
15	6,6	5,1	4,6
mm	50	100	150
kg/m	0,82		

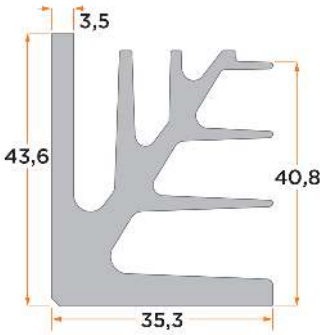
PR 18

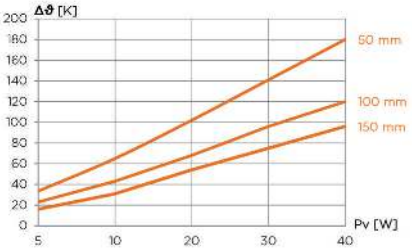




Pv [W]	RthK [K/W]		
1	19,9	12,5	9,3
2	18,2	11,9	8,2
3	16,7	10,4	6,9
4	15,4	9,6	5,8
5	14,2	8,7	4,9
mm	25	50	75
kg/m	0,22		

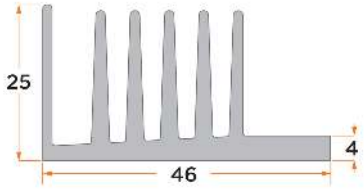
PR 394

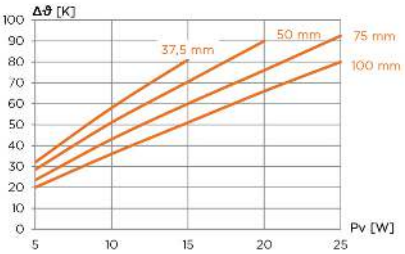




Pv [W]	RthK [K/W]		
5	6,70	4,60	3,20
10	6,50	4,30	3,10
20	5,10	3,40	2,70
30	4,70	3,20	2,50
40	4,50	3,00	2,40
mm	50	100	150
kg/m	1,79		

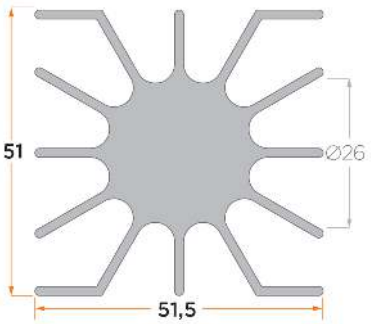
PR 113

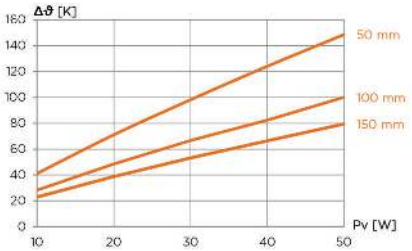




Pv [W]	RthK [K/W]			
5	6,4	5,7	4,7	4,0
10	5,8	5,1	4,3	3,6
15	5,4	4,7	4,0	3,4
20		4,5	3,8	3,3
25			3,7	3,2
mm	37,5	50	75	100
kg/m	1,10			

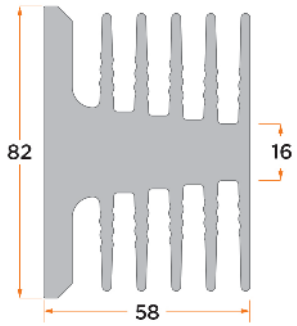
PR 365

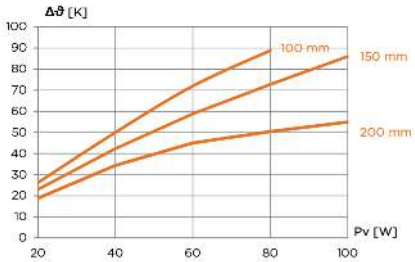




Pv [W]	RthK [K/W]		
10	4,11	2,83	2,29
20	3,55	2,42	1,94
30	3,27	2,22	1,77
40	3,10	2,06	1,66
50	2,97	2,00	1,59
mm	50	100	150
kg/m	2,50		

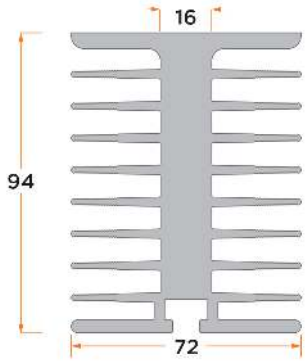
PR 218

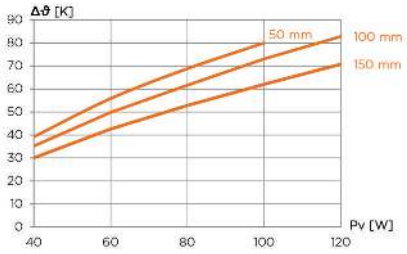




Pv [W]	RthK [K/W]		
20	1,31	1,15	0,94
40	1,25	1,06	0,86
60	1,20	0,98	0,75
80	1,11	0,91	0,63
100		0,86	0,55
mm	100	150	200
kg/m	7,00		

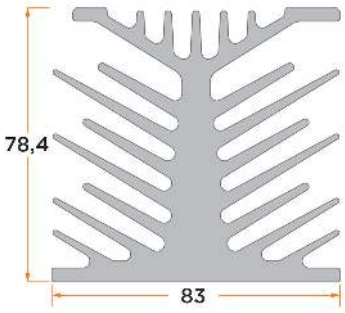
PR 227

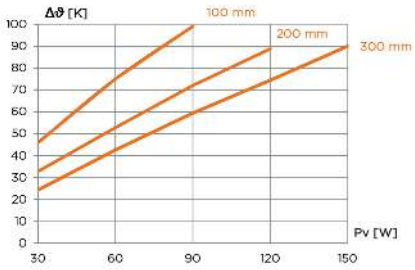




Pv [W]	RthK [K/W]		
40	0,98	0,88	0,75
60	0,93	0,83	0,71
80	0,86	0,77	0,66
100	0,80	0,73	0,62
120		0,69	0,59
mm	50	100	150
kg/m	7,79		

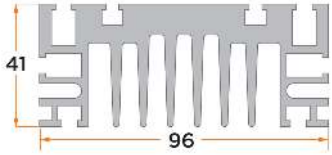
PR 412

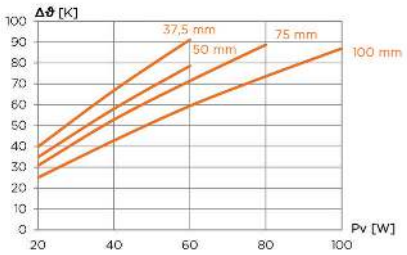




Pv [W]	RthK [K/W]		
30	1,53	1,09	0,81
60	1,25	0,88	0,71
90	1,10	0,80	0,66
120		0,74	0,62
150			0,60
mm	100	200	300
kg/m	7,63		

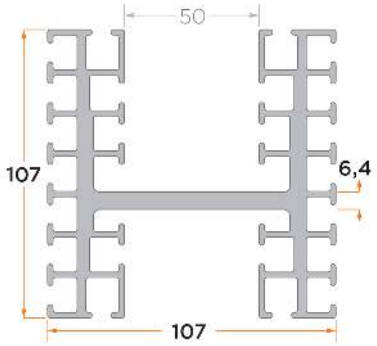
PR 221

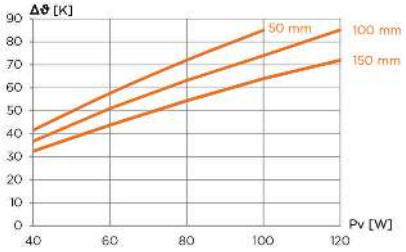




Pv [W]	RthK [K/W]			
20	1,99	1,74	1,54	1,25
40	1,67	1,45	1,32	1,07
60	1,52	1,31	1,19	0,99
80			1,11	0,92
100				0,87
mm	37,5	50	75	100
kg/m	4,88			

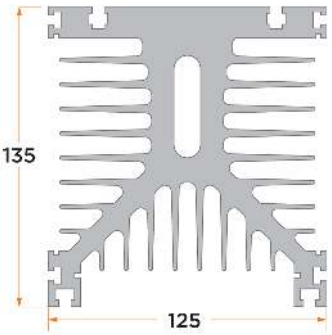
PR 210

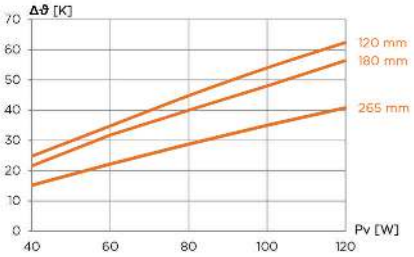




Pv [W]	RthK [K/W]		
40	1,04	0,92	0,81
60	0,96	0,85	0,73
80	0,90	0,79	0,68
100	0,85	0,74	0,64
120		0,71	0,60
mm	50	100	150
kg/m	7,17		

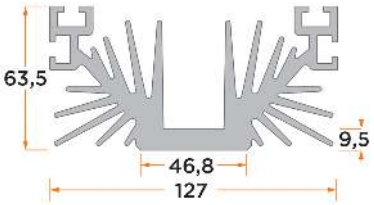
PR 223

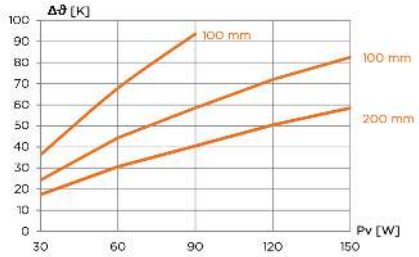




Pv [W]	RthK [K/W]		
40	0,62	0,54	0,38
60	0,58	0,53	0,37
80	0,56	0,50	0,36
100	0,54	0,48	0,35
120	0,52	0,47	0,34
mm	120	180	265
kg/m	17,88		

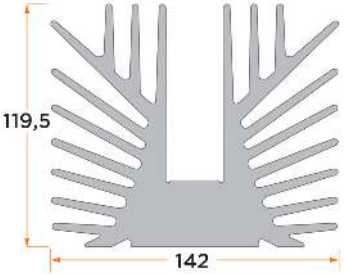
PR 230

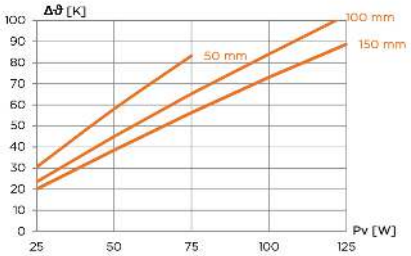




Pv [W]	RthK [K/W]		
30	1,21	0,81	0,58
60	1,13	0,74	0,51
90	1,04	0,65	0,45
120		0,60	0,42
150		0,55	0,39
mm	50	100	200
kg/m	7,45		

PR 330

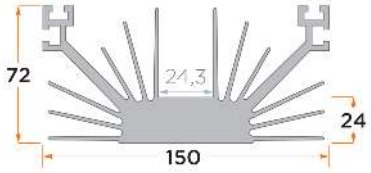


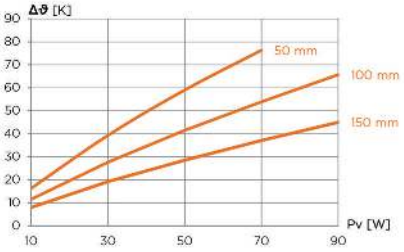


Pv [W]	RthK [K/W]		
25	1,22	0,94	0,80
50	1,16	0,90	0,77
75	1,11	0,87	0,75
100		0,84	0,73
125		0,82	0,71
mm	50	100	150
kg/m	19,50		

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

PR 386





Pv [W]	RthK [K/W]		
10	1,63	1,15	0,80
30	1,31	0,92	0,64
50	1,18	0,83	0,57
70	1,09	0,77	0,53
90		0,73	0,50
mm	50	100	150
kg/m	8,86		

The fastest way to select your standard extrusion:
The ALUTRONIC EXTRUSION- FILTER at
www.alutronic.com/products/heat-sink-profile

Table of Content

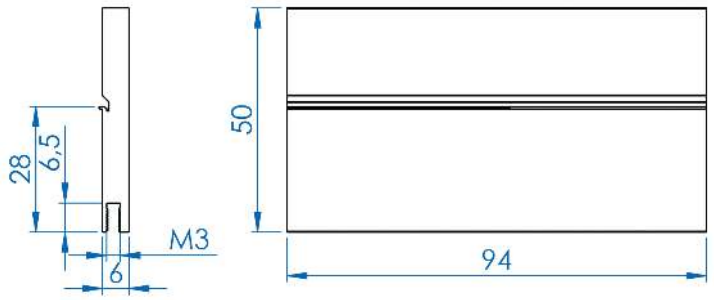
You will find your specific solution here from about 200 specific heat sinks for all prevalent semiconductor housing types, such as, e.g. TO 220, TO 3, TO 66, TO 9, SOT 32 and many more.
Our offer is divided into various types of assembly: Screwing, soldering, plug-in and adhesion.
We modify standards for you or we create these based on your technical perceptions or ideas. We are pleased to advise you.

If you are unable to find the solution you are looking for in this catalogue, please call us up.

We are constantly expanding our range of products, and you can also get the latest information by visiting our website at www.alutronic.de

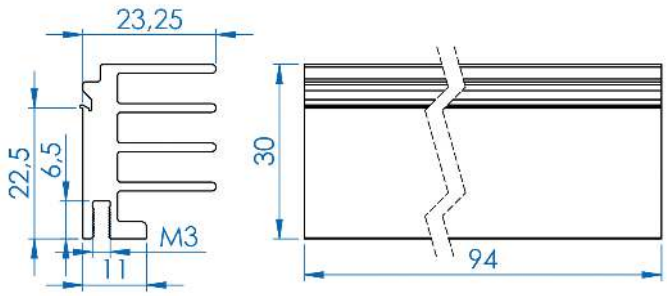
Appropriate clips can be found in chapter Mounting / Mounting Clips

PR 101/94/SE



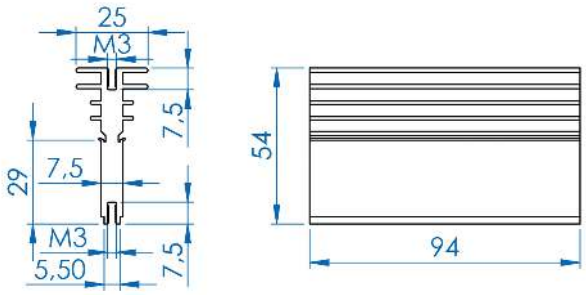
For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **7** Device mounted by: **Mounting Clip**

PR 290/94/SE



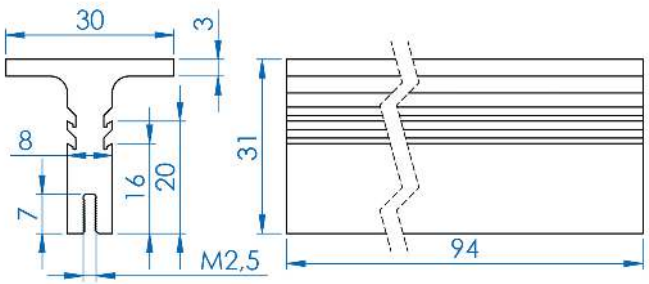
For Casing: **TO 220** Rthk: [K/W]: **6.3** Device mounted by: **Mounting Clip**

PR 118/94/SE/M3



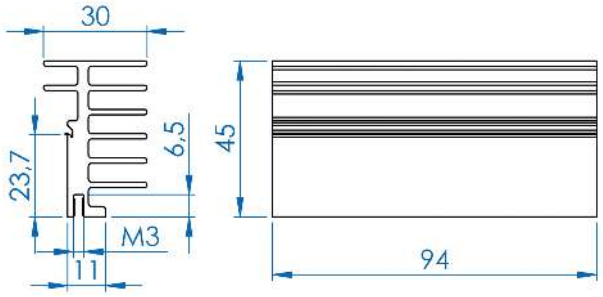
For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.2** Device mounted by: **Mounting Clip**

PR 116/94/SE/M2,5



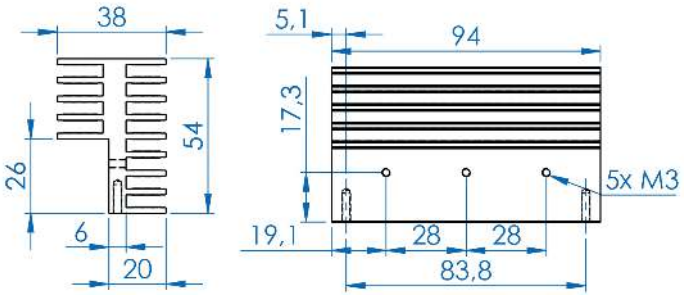
For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **4.8** Device mounted by: **Mounting Clip**

PR 127/94/SE



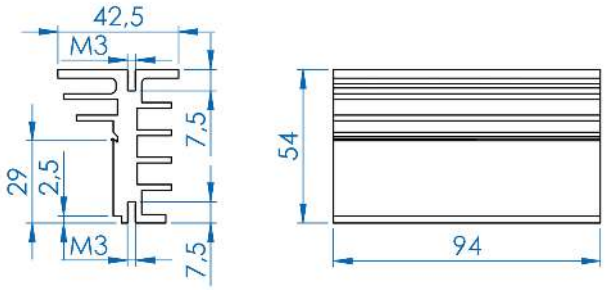
For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **4** Device mounted by: **Mounting Clip**

PR 136/94/SE/M3



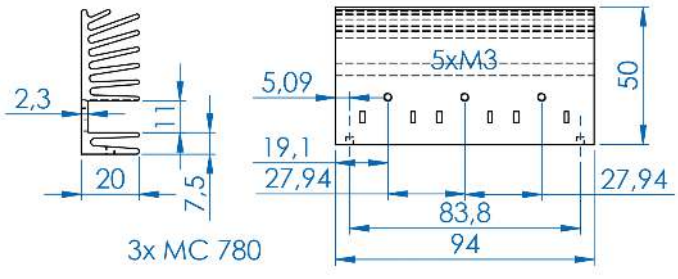
For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **2.6** Device mounted by: **Screw**

PR 119/94/SE



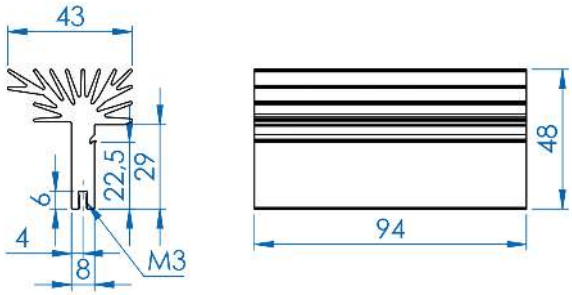
For Casing: **TO 220** Rthk: [K/W]: **3.4** Device mounted by: **Mounting Clip**

PR 139/94/SE/M3



For Casing: **TO 220** Rthk: [K/W]: **3.9** Device mounted by: **Mounting Clip**

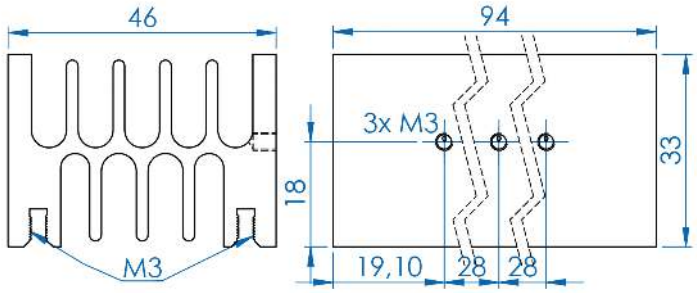
PR 292/94/SE/M3



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.2** Device mounted by: **Mounting Clip**

PR 137/94/SE/M3

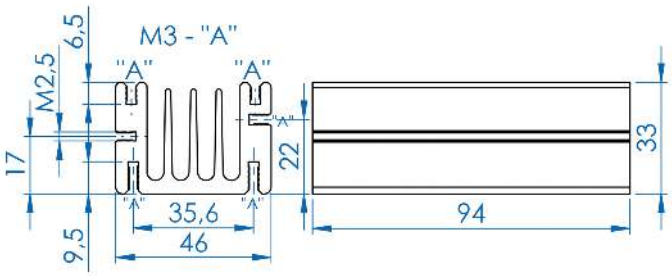
with integrated standard holes for fixing the semiconductor



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3** Device mounted by: **Screw**

PR 138/94/SE/M3

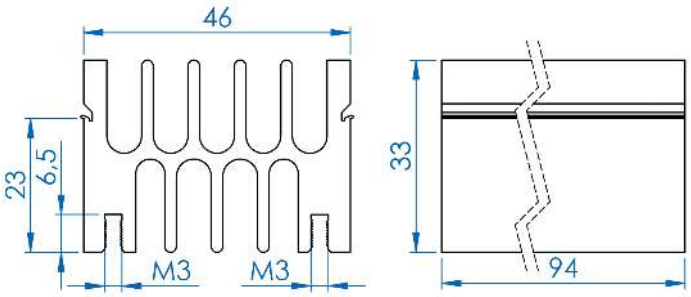
with integrated screw channel for fixing the semiconductor



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.2** Device mounted by: **Screw**

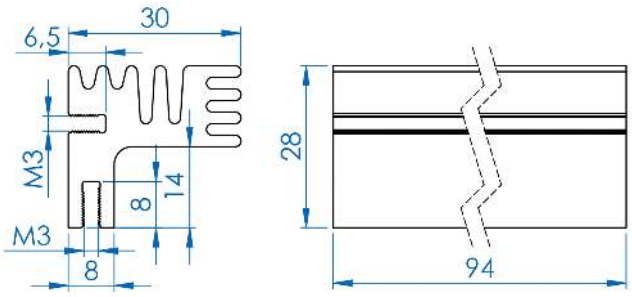
PR 293/94/SE

with integrated clip groove for fixing the semiconductor



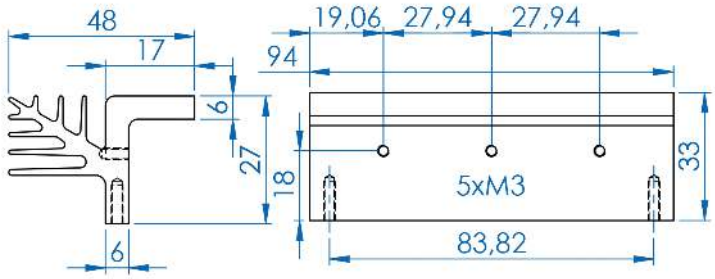
For Casing: **TO 220** Rthk: [K/W]: **3.2** Device mounted by: **Mounting Clip**

PR 234/94/SE



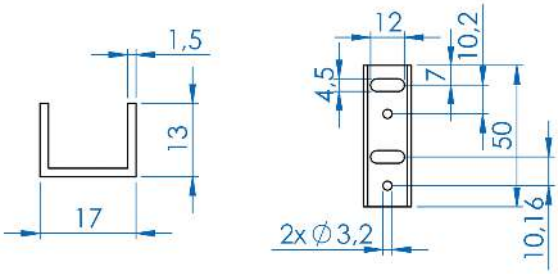
For Casing: **TO 220** Rthk: [K/W]: **4.5** Device mounted by: **Screw**

PR 143/94/SE/M3



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.7** Device mounted by: **Screw**

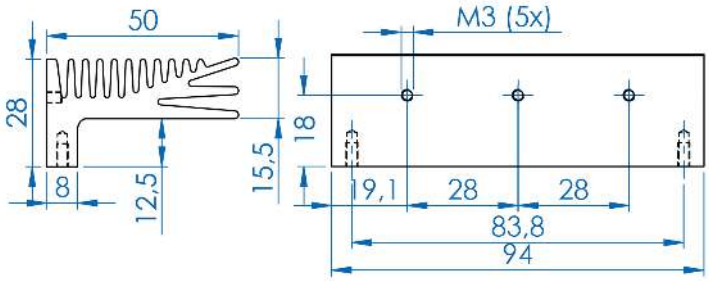
PR 17/50/SE



For Casing: **TO 220** Rthk: [K/W]: **21** Device mounted by: **Screw**

PR 133/94/SE/M3

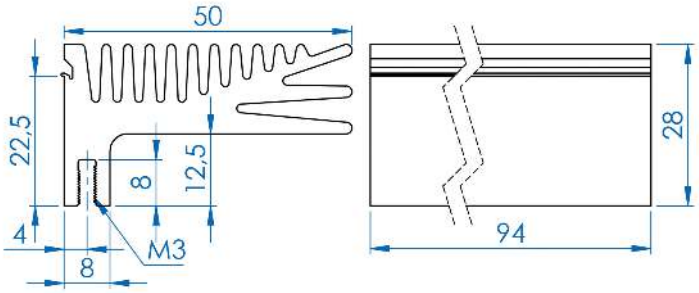
with integrated standard holes for fixing the semiconductor



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.6** Device mounted by: **Screw**

PR 233/94/SE

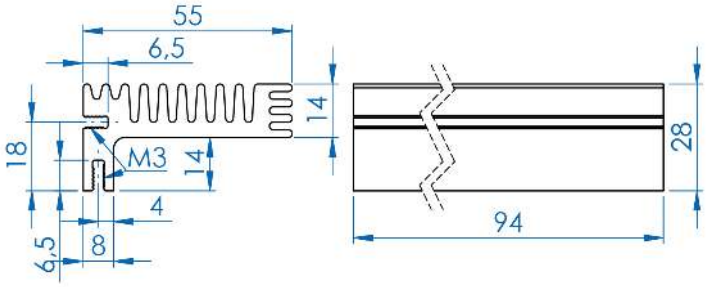
with integrated clip groove for fixing the semiconductor



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.6** Device mounted by: **Mounting Clip**

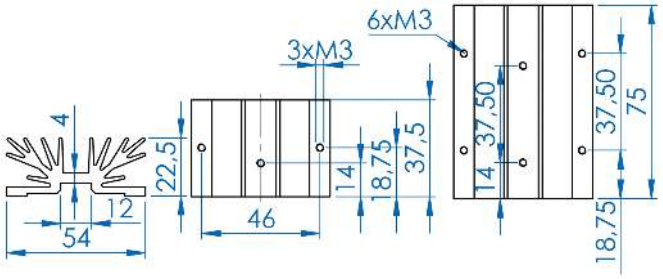
PR 126/94/SE/M3

with integrated screw channel for fixing the semiconductor



For Casing: **TO 220, TO 218 (TOP 3)** Rthk: [K/W]: **3.6** Device mounted by: **Screw**

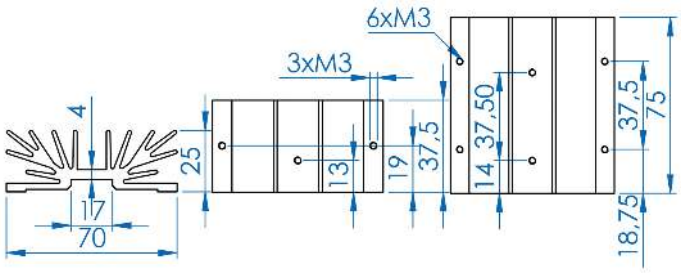
PR 134 with standard perforation



For Casing: **TO220, TO126, (SOT32)** Device mounted by: **Screw**

article	Rthk [K/W]	length [mm]
PR 134/37,5/SE/M3	5.7	37.5
PR 134/75/SE/M3	3.8	75

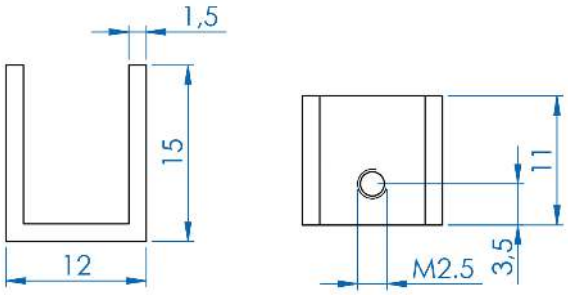
PR 135 with standard perforation



For Casing: **TO 220, TO 218 (TOP 3)** Device mounted by: **Screw**

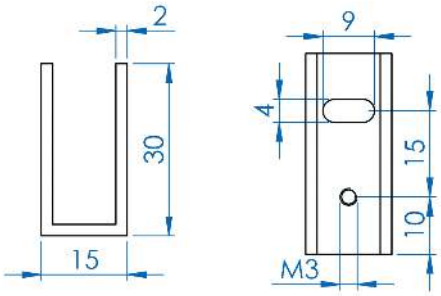
article	Rthk [K/W]	length [mm]
PR 135/37,5/SE/M3	4.3	37.5
PR 135/75/SE/M3	2.9	75

PR 10/11/SE



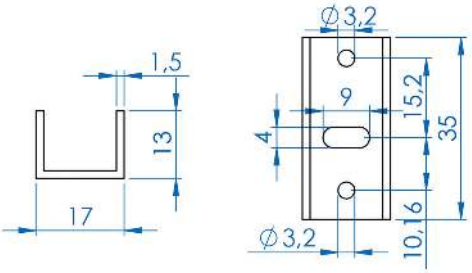
For Casing: **SOT 32, TO 126** Rthk: [K/W]: **45** Device mounted by: **Screw**

PR 15/35/SE



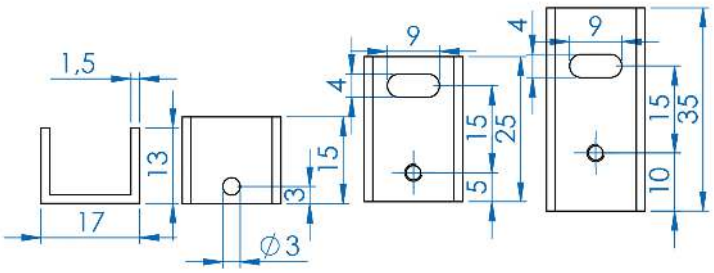
For Casing: **TO 220** Rthk: [K/W]: **9** Device mounted by: **Screw**

PR 17/35/II/SE



For Casing: **TO 220** Rthk: [K/W]: **21** Device mounted by: **Screw**

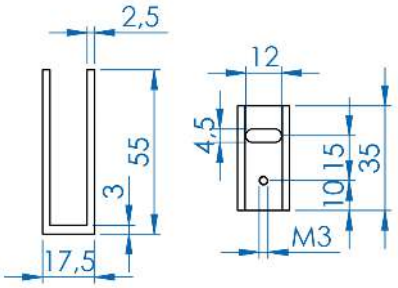
PR 17 with standard perforation



For Casing: **TO 220** Device mounted by: **Screw**

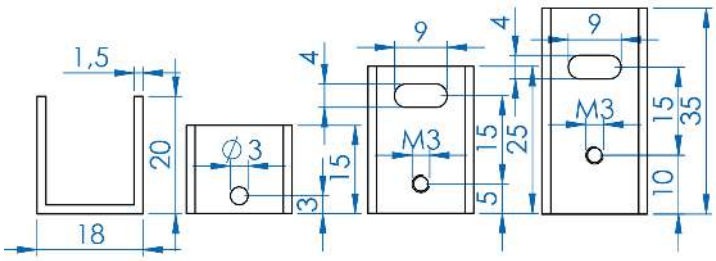
article	Rthk [K/W]	width [mm]
PR17/15/SE	28	15
PR17/25/SE	24	25
PR17/35/SE	21	35

PR 16/35/SE



For Casing: **TO 220** Rthk: [K/W]: **7** Device mounted by: **Screw**

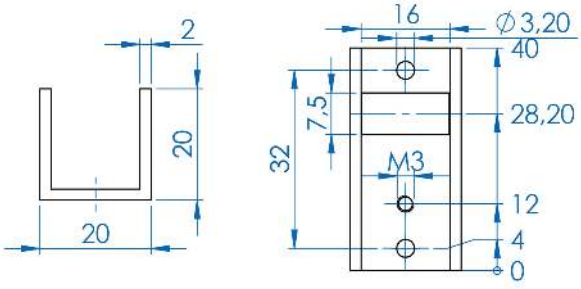
PR 18 with standard perforation



For Casing: **TO 220** Device mounted by: **Screw**

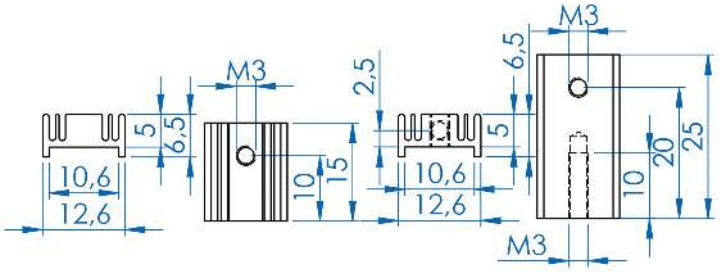
article	Rthk [K/W]	width [mm]
PR 18/15/SE	20	15
PR 18/25/SE	17	25
PR 18/35/SE	13	35

PR 13/40/SE



For Casing: **TO 220** Rthk: [K/W]: **11** Device mounted by: **Screw**

PR 5 with M3 thread



For Casing: **TO 220** Device mounted by: **Screw**

article	Rthk [K/W]	height [mm]
PR5/15/SE/M3	36	15
PR5/25/SE/M3	32	25

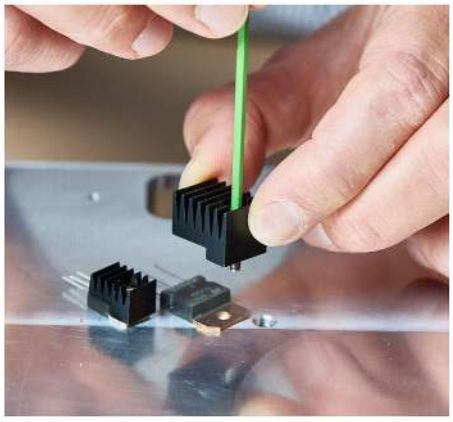
Shell and Pressure Heat Sink

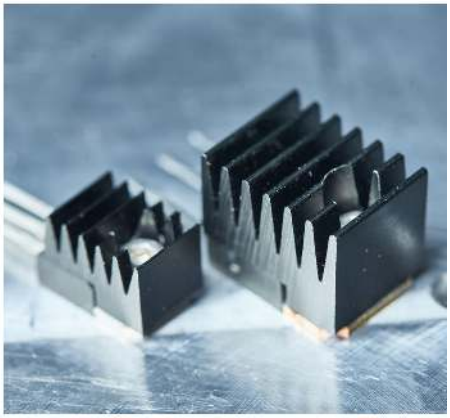
for contact optimisation and additional convection surface.

- Reducing the transfer resistance (R_{thGK}) to the main heat sink and improving the heat flow by full area contact pressure
- Reducing the total heat resistance (R_{th}) by additional heat dissipation

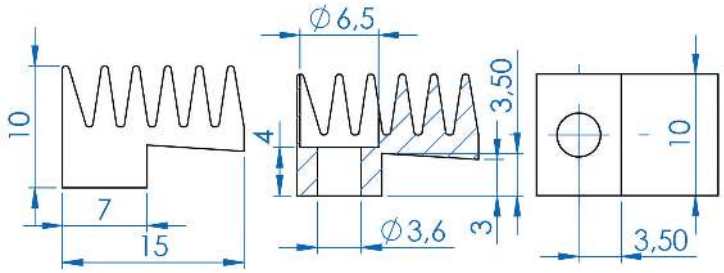
Standard article AK350/10/SE and AK352/15/SE

Special dimensions, e.g. for multiple installation on request



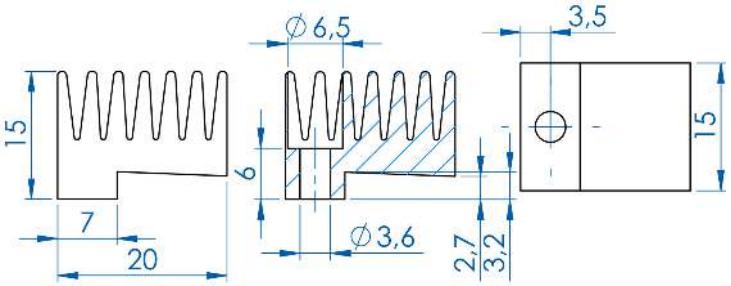


AK 350/10/SE



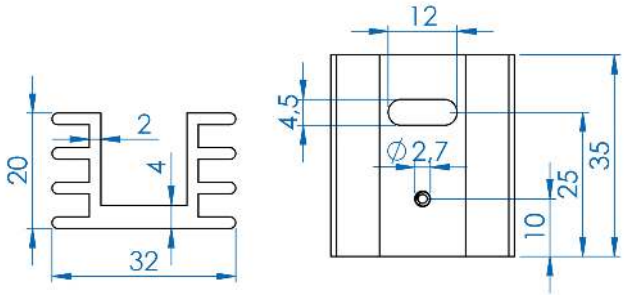
For Casing: **TO 220** Rthk: [K/W]: **64** Device mounted by: **Screw**

AK 352/15/SE



For Casing: **TO 218, TOP 3** Rthk: [K/W]: **28** Device mounted by: **Screw**

PR 24

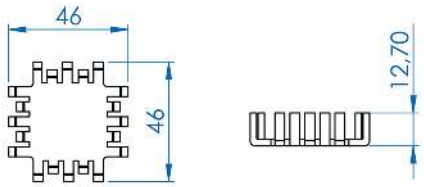


For Casing: **TO 220** Device mounted by: **Screw**

article	Rthk [K/W]	length [mm]
PR24/20/SE	10.5	20
PR 24/35/SE	8.5	35
PR 24/50/SE	7	50

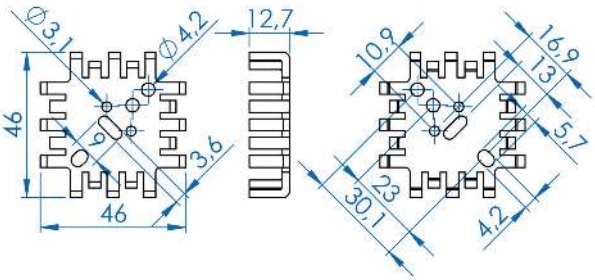
FI 310/SE

for Custom Perforation



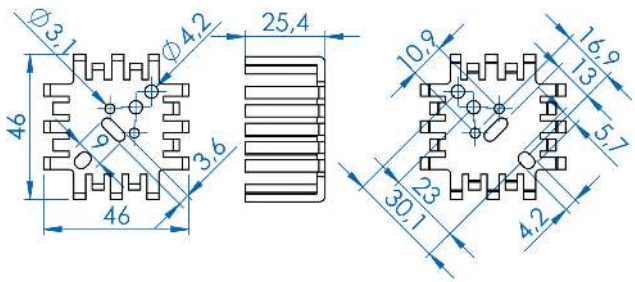
Rthk: [K/W]: **7** Device mounted by: **Screw**

FI 311/SE



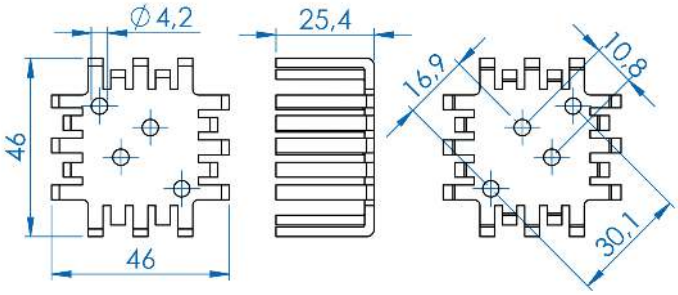
For Casing: **TO3, TO66, TO9, SOT32, TO220** Rthk: [K/W]: **7** Device mounted by: **Screw**

FI 321/SE



For Casing: **TO3, TO66, TO9, SOT32, TO220** Rthk: [K/W]: **6** Device mounted by: **Screw**

FI 322/SE



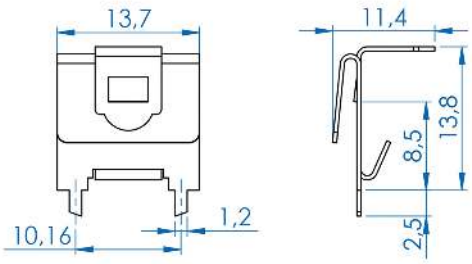
For Casing: **TO 3**

Rthk: [K/W]: **6**

Device mounted by: **Screw**

CK 970

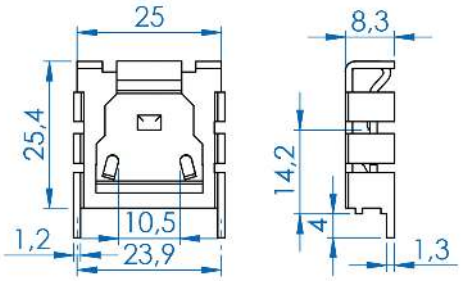
out of Brass.



For Casing: **TO 92** Rthk: [K/W]: **40** Device mounted by: **Clip on**

FI 353/SN

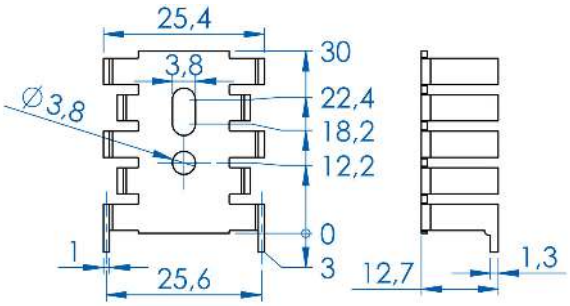
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **20** Device mounted by: **Clip on**

FI 351/30/SN

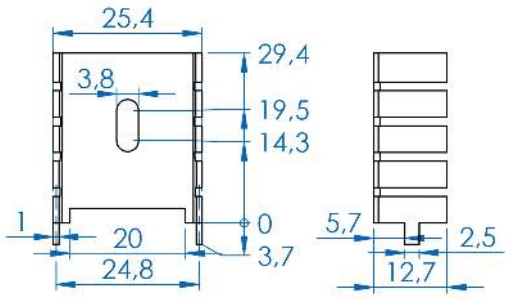
Full Tinned



For Casing: **TO 126, (SOT32), TO 220** Rthk: [K/W]: **17** Device mounted by: **Screw**

FI 306/SN

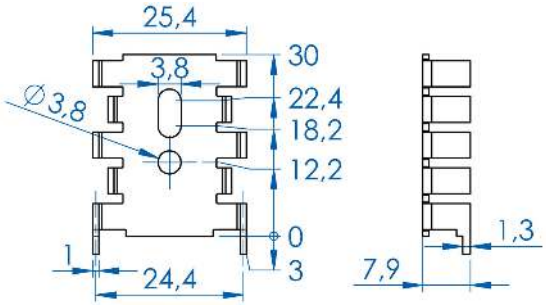
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **22.5** Device mounted by: **Screw**

FI 347/30/SN

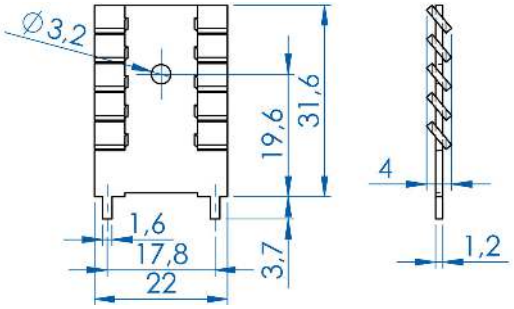
Full Tinned



For Casing: **TO220, TO126, (SOT32)** Rthk: [K/W]: **20** Device mounted by: **Screw**

FI 300/SN

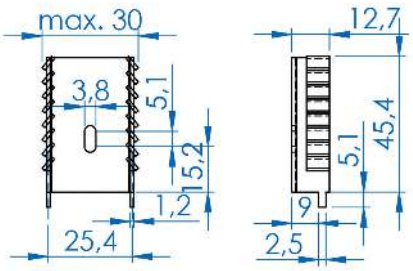
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **29.5** Device mounted by: **Screw**

FI 307/SN

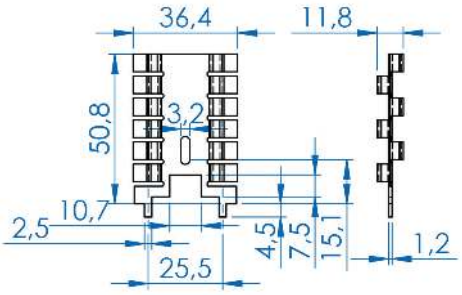
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **15.5** Device mounted by: **Screw**

FI 308/SN

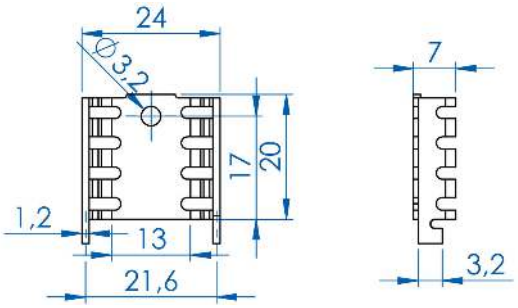
Full Tinned



For Casing: **TO 220, TO 202** Rthk: [K/W]: **16.5** Device mounted by: **Screw**

FI 302/SN

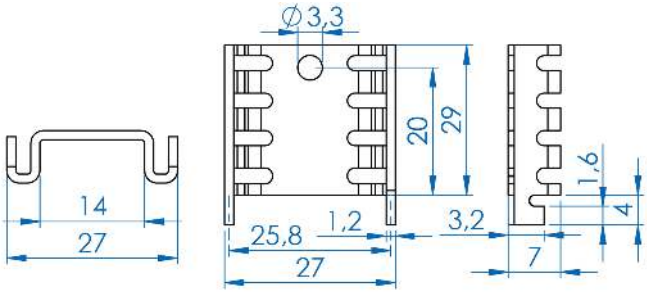
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **23.5** Device mounted by: **Screw**

FI 303/SN

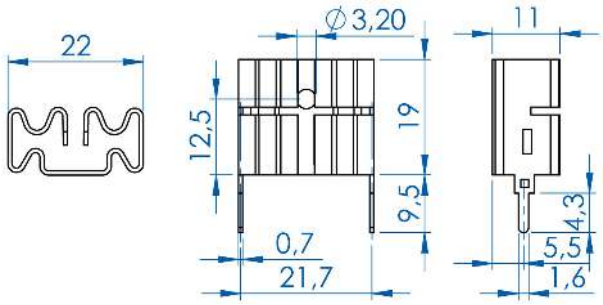
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **22.5** Device mounted by: **Screw**

CK 985/SN

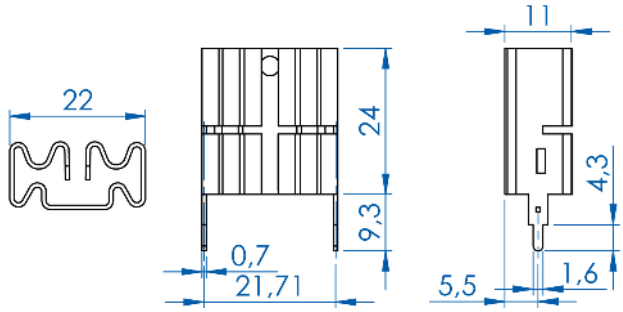
Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **20** Device mounted by: **Clip on**

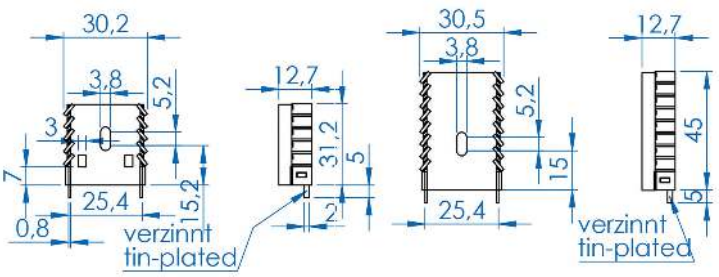
CK 990/SN

Full Tinned



For Casing: **TO 220** Rthk: [K/W]: **19.5** Device mounted by: **Clip on**

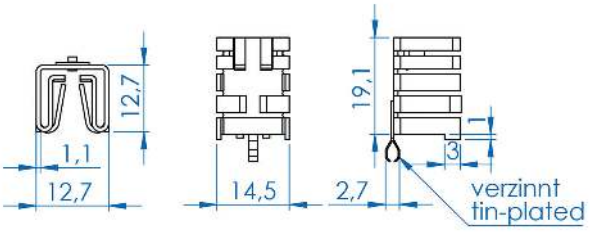
FI 309



For Casing: **TO 220** Device mounted by: **Screw**

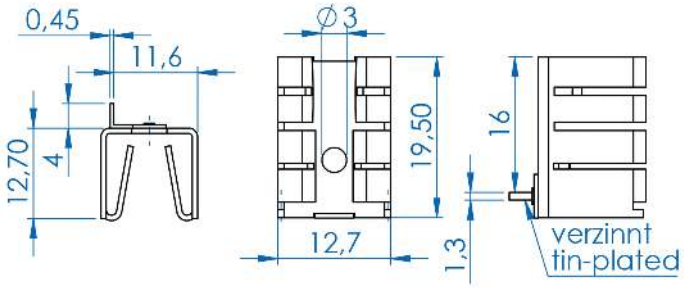
article	Rthk [K/W]	height [mm]
FI 309/30,2/SE	17	30.2
FI 309/45/SE	13	45

FI 343/SE



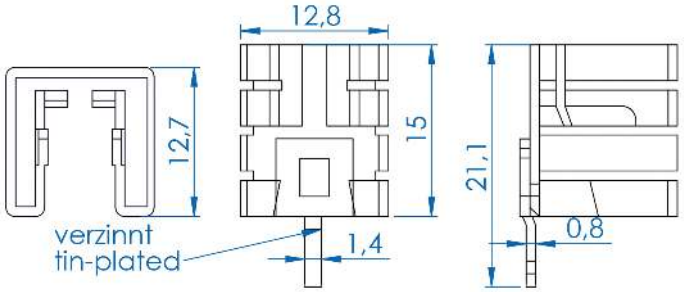
For Casing: **TO 220** Rthk: [K/W]: **25** Device mounted by: **Clip on**

FI 342/SE



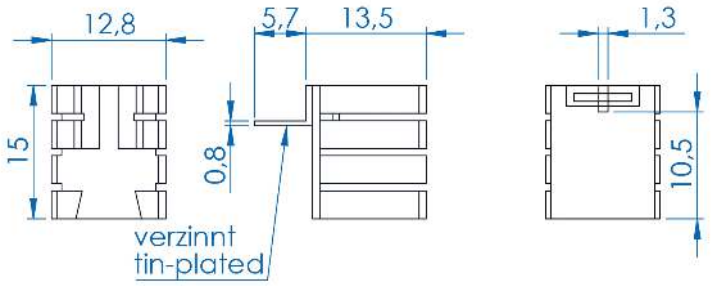
For Casing: **TO 220** Rthk: [K/W]: **25** Device mounted by: **Clip on**

FI 326/SE



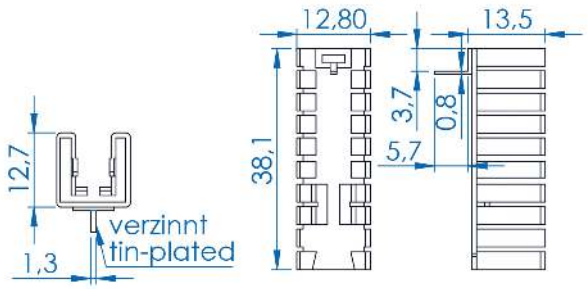
For Casing: **TO 220** Rthk: [K/W]: **26** Device mounted by: **Clip on**

FI 327/SE



For Casing: **TO 220** Rthk: [K/W]: **26** Device mounted by: **Clip on**

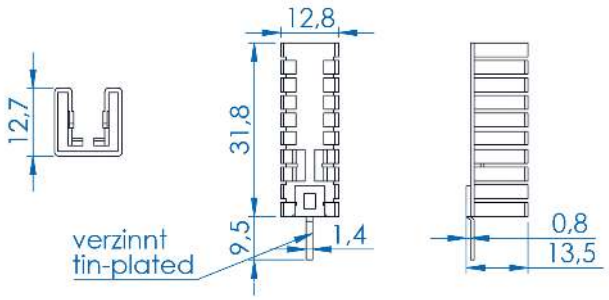
FI 330/SE



For Casing: **TO 220** Rthk: [K/W]: **16** Device mounted by: **Clip on**

FI 331/SE

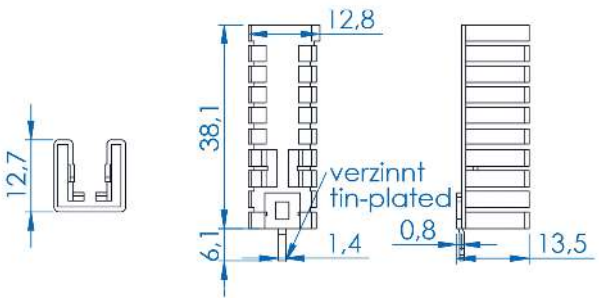
Soldering pin length 9.5



For Casing: **TO 220** Rthk: [K/W]: **16** Device mounted by: **Clip on**

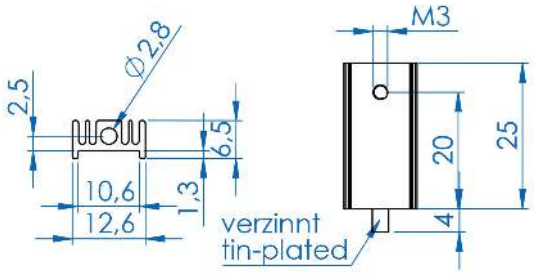
FI 329/SE

Soldering pin length 6.1



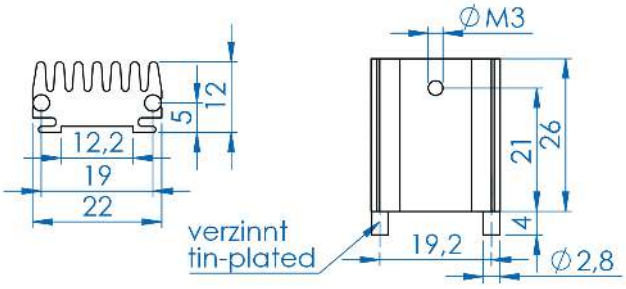
For Casing: **TO 220** Rthk: [K/W]: **16** Device mounted by: **Clip on**

PR 5/25/SE/LS



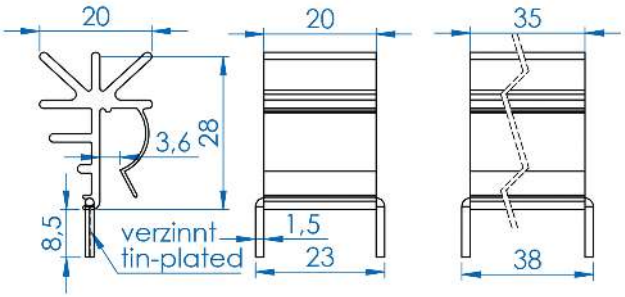
For Casing: **TO 220** Rthk: [K/W]: **32** Device mounted by: **Screw**

PR 6/26/SE/LS



For Casing: **TO 220** Rthk: [K/W]: **14** Device mounted by: **Screw**

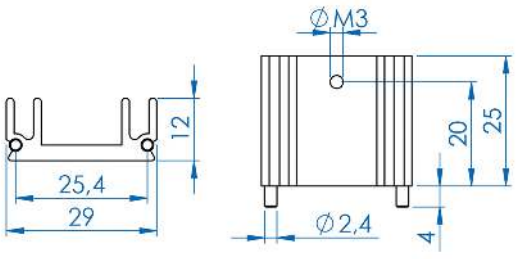
CK 960



For Casing: **TO 220** Device mounted by: **Clip on**

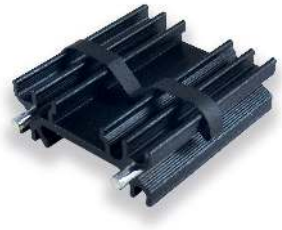
article	Rthk [K/W]	width [mm]
CK 960/20/SE	13	20
CK 960/35/SE	11	35

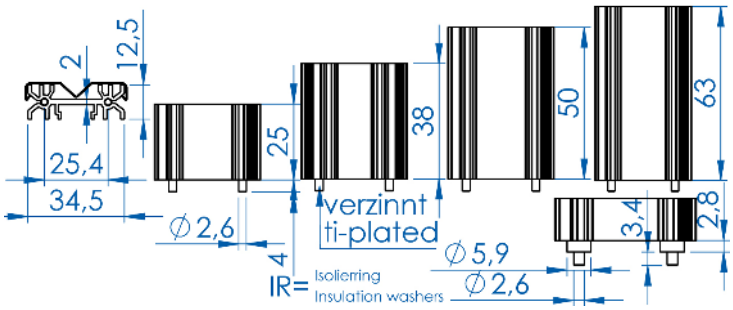
PR 29/25/SE/LS



For Casing: **TO 220** Rthk: [K/W]: **14** Device mounted by: **Screw**

PR 28 for clip mounting

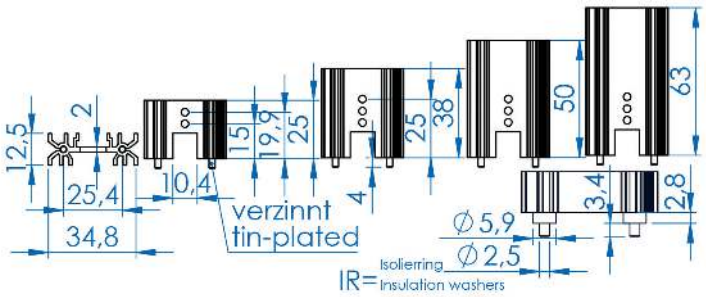




For Casing: **TO220, TO202, TO218 (TOP 3)** Device mounted by: **Mounting Clip** For Mounting Clip: **MC 28**

article	Rthk [K/W]	height [mm]
PR 28/25/MC	13	25
PR 28/38/MC	10	38
PR 28/50/MC	8.6	50
PR 28/63/MC	6.8	63
PR 28/25/MC/IR	13	25
PR 28/38/MC/IR	10	38
PR 28/50/MC/IR	8.6	50
PR 28/63/MC/IR	6.8	63

PR 28 for screw mounting

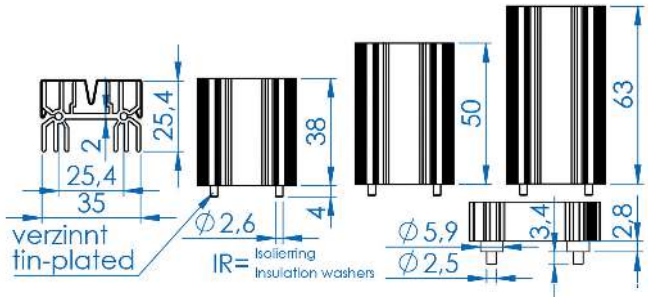


For Casing: **TO220, TO202, TO218 (TOP 3)** Device mounted by: **Screw**

article	Rthk [K/W]	height [mm]
PR 28/25/SE	13	25
PR 28/38/SE	10	38
PR 28/50/SE	8.6	50
PR 28/63/SE	6.8	63
PR28/25/SE/IR	13	25
PR 28/38/SE/IR	10	38
PR 28/50/SE/IR	8.6	50
PR 28/63/SE/IR	6.8	63

Alutronic delivers custom-cut silicone foils to fit you application-starting with lot size 1!

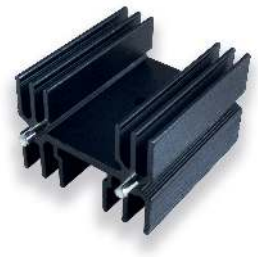
PR 31 for clip mounting

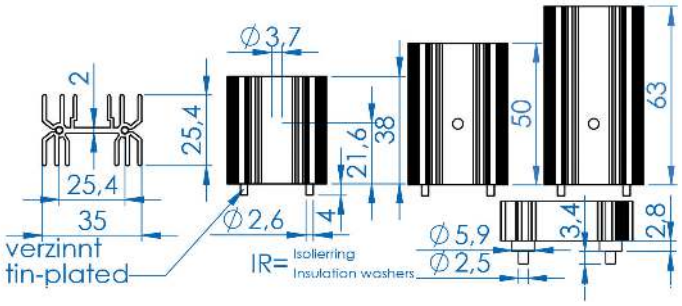


For Casing: **TO220, TO218 (TOP 3)** Device mounted by: **Mounting Clip** For Mounting Clip: **MC 31**

article	Rthk [K/W]	height [mm]
PR 31/38/MC	7.2	38
PR 31/50/MC	5.8	50
PR 31/63/MC	4.7	63
PR 31/38/MC/IR	7.2	38
PR 31/50/MC/IR	5.8	50
PR 31/63/MC/IR	4.7	63

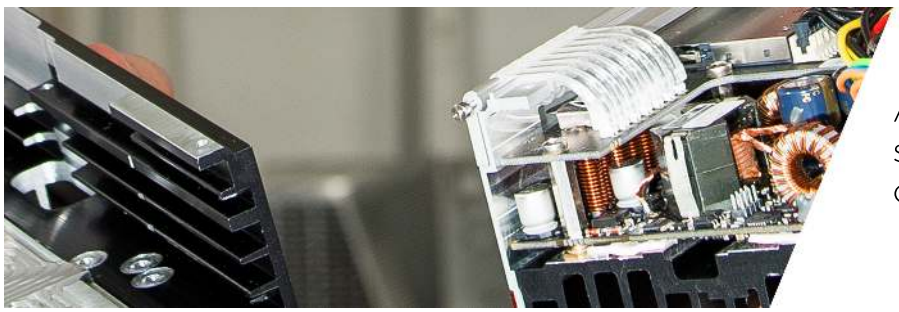
PR 31 for screw mounting





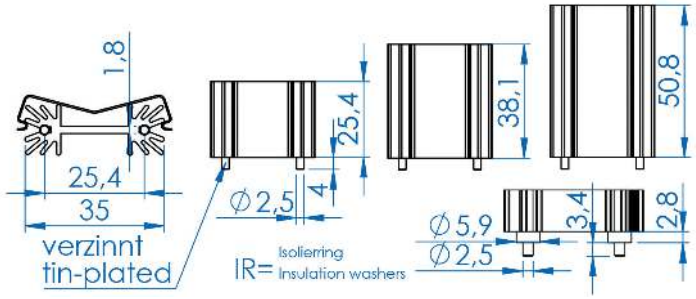
For Casing: **TO 220, TO 218, (TOP 3)** Device mounted by: **Screw**

article	Rthk [K/W]	height [mm]
PR 31/38/SE	7.2	38
PR 31/50/SE	5.8	50
PR 31/63/SE	4.7	63
PR 31/38/SE/IR	7.2	38
PR 31/50/SE/IR	5.8	50
PR 31/63/SE/IR	4.7	63



Alutronic offers pre-assembly of standard and customized distant bolts!

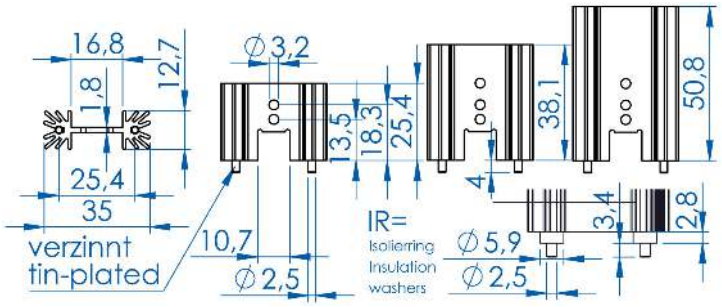
PR 32 for clip mounting



For Casing: **TO 220,TO 218,TOP 3, TO**Device mounted by: **Mounting Clip** For Mounting Clip: **MC 32 202**

article	Rthk [K/W]	height [mm]
PR 32/25,4/MC	14	25.4
PR 32/38,1/MC	11	38.1
PR 32/50,8/MC	9	50.8
PR 32/25,4/MC/IR	14	25.4
PR 32/38,1/MC/IR	11	38.1
PR 32/50,8/MC/IR	9	50.8

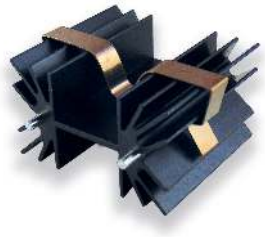
PR 32 for screw mounting

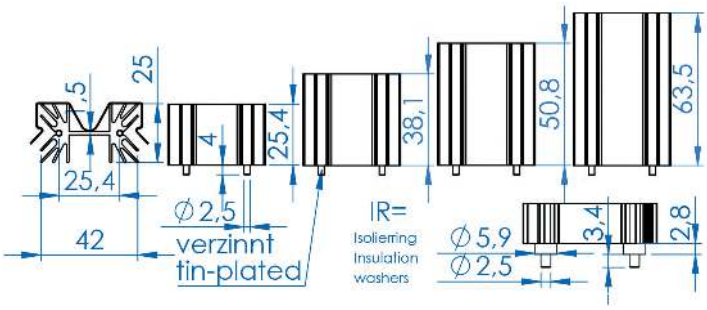


For Casing: **TO 220, TO202, TO218 (TOP 3)** Device mounted by: **Screw**

article	Rthk [K/W]	height [mm]
PR 32/25,4/SE	14	25.4
PR 32/38,1/SE	11	38.1
PR 32/50,8/SE	9	50.8
PR 32/25,4/SE/IR	14	25.4
PR 32/38,1/SE/IR	11	38.1
PR 32/50,8/SE/IR	9	50.8

PR 33 for clip mounting

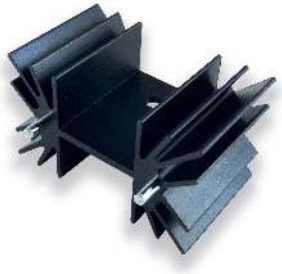


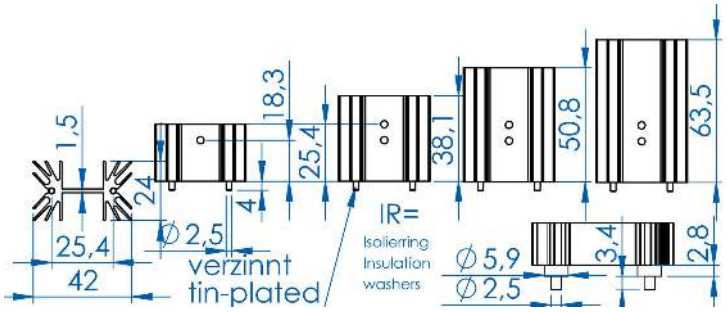


For Casing: **TO220, TO 218 (TOP 3)** Device mounted by: **Mounting Clip** For Mounting Clip: **MC 33**

article	Rthk [K/W]	height [mm]
PR 33/25,4/MC	6.2	25.4
PR 33/38,1/MC	5	38.1
PR 33/50,8/MC	4.2	50.8
PR 33/63,5/MC	3.6	63.5
PR 33/25,4/MC/IR	6.2	25.4
PR 33/38,1/MC/IR	5	38.1
PR 33/50,8/MC/IR	4.2	50.8
PR 33/63,5/MC/IR	3.6	63.5

PR 33 for screw mounting



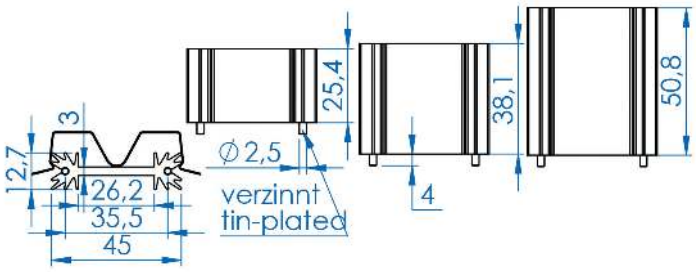


For Casing: **TO 220, TO 218, (TOP 3)** Device mounted by: **Screw**

article	Rthk [K/W]	height [mm]
PR 33/25,4/SE	6.2	25.4
PR 33/38,1/SE	5	38.1
PR 33/50,8/SE	4.2	50.8
PR 33/63,5/SE	3.6	63.5
PR 33/25,4/SE/IR	6.2	25.4
PR 33/38,1/SE/IR	5	38.1
PR 33/50,8/SE/IR	4.2	50.8
PR 33/63,5/SE/IR	3.6	63.5

Alutronic offers the "ClipTool" as a easy manual mounting of clip-on semiconductors- simple and efficient!

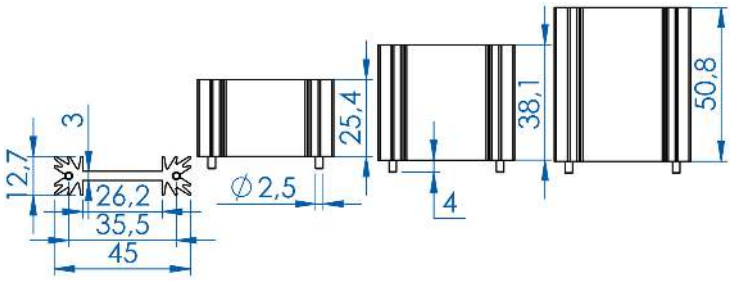
PR 34 for clip mounting



For Casing: **TO220, TO202, TO218 (TOP 3)** Device mounted by: **Mounting Clip** For Mounting Clip: **MC 34**

article	Rthk [K/W]	height [mm]
PR 34/25,4/MC	8.2	25.4
PR 34/38,1/MC	7	38.1
PR 34/50,8/MC	6.2	50.8

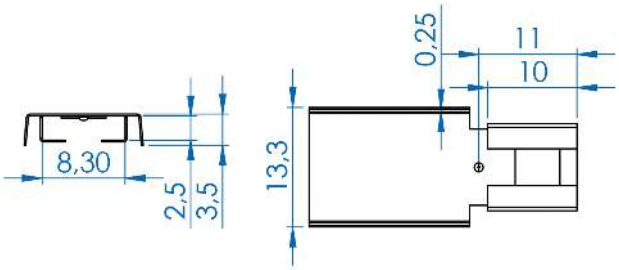
PR 34 for screw mounting



For Casing: **TO220, TO202, TO218 (TOP 3)** Device mounted by: **Screw**

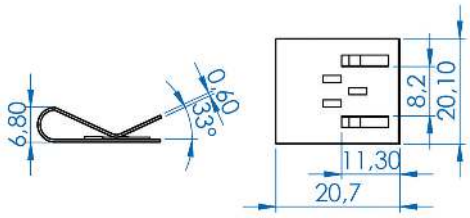
article	Rthk [K/W]	height [mm]
PR 34/25,4/SE	8.2	25.4
PR 34/38,1/SE	7	38.1
PR 34/50,8/SE	6.2	50.8

CK 932



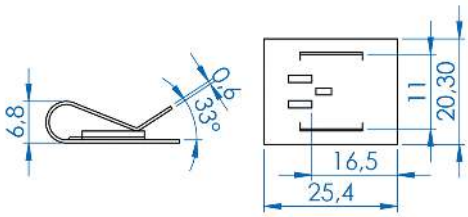
For Casing: **TO126, (SOT32), SOT82** Rthk: [K/W]: **60** Device mounted by: **Clip on**

CK 632/SE



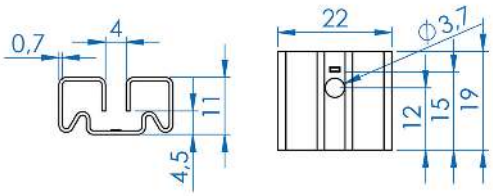
For Casing: **TO126 (SOT32)** Rthk: [K/W]: **22** Device mounted by: **Clip on**

CK 633/SE



For Casing: **TO 220** Rthk: [K/W]: **21** Device mounted by: **Clip on**

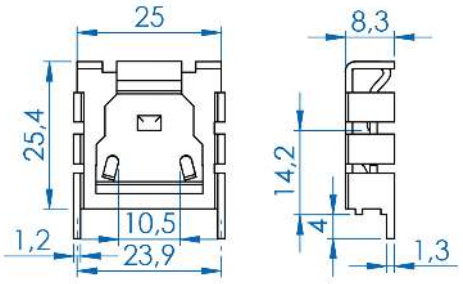
CK 980



For Casing: **TO 220** Rthk: [K/W]: **21** Device mounted by: **Clip on**

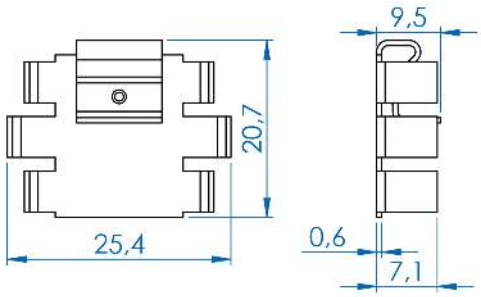
article	Surface
CK 980/SE	
CK 980/AL	

FI 353/SE



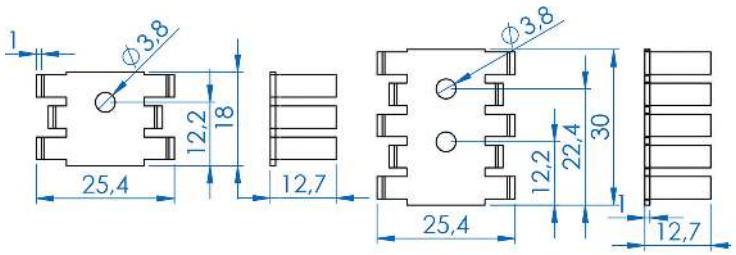
For Casing: **TO 220** Rthk: [K/W]: **18** Device mounted by: **Clip on**

FI 344/SE



For Casing: **TO 220** Rthk: [K/W]: **27** Device mounted by: **Clip on**

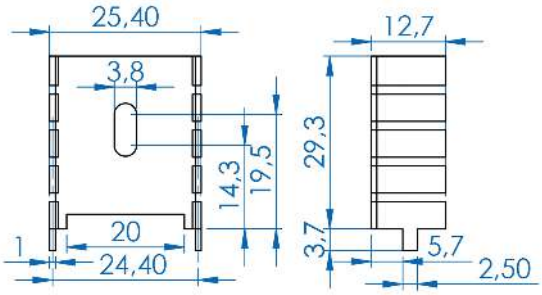
FI 349



For Casing: **SOT32 (TO126), TO220** Device mounted by: **Screw**

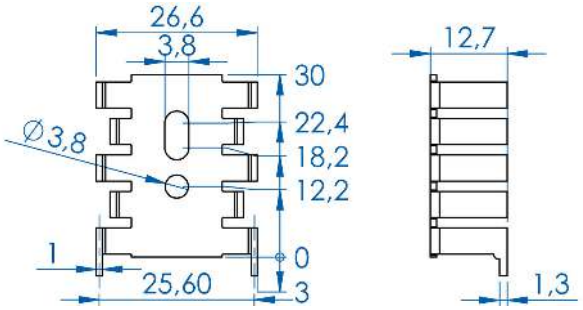
article	Rthk [K/W]	height [mm]
FI 349/18/SE	21	18
FI 349/30/SE	15	30

FI 306/SE



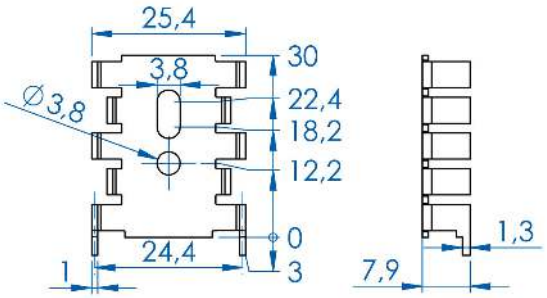
For Casing: **TO 220** Rthk: [K/W]: **20** Device mounted by: **Screw**

FI 351/30/SE



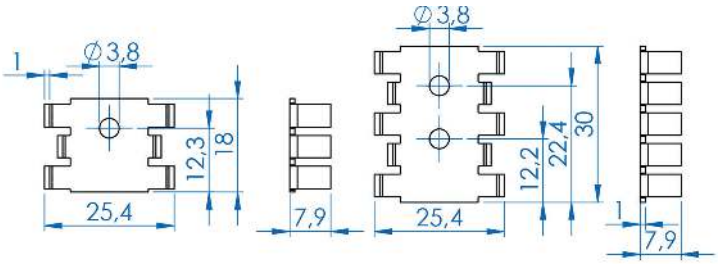
For Casing: **TO 126, (SOT32), TO 220** Rthk: [K/W]: **15** Device mounted by: **Screw**

FI 347/30/SE



For Casing: **TO 126, (SOT32), TO 220** Rthk: [K/W]: **18** Device mounted by: **Screw**

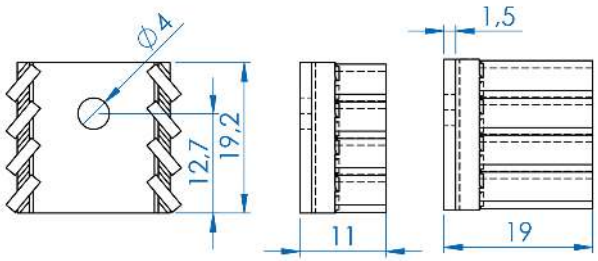
FI 345



For Casing: **SOT32 (TO126), TO220** Device mounted by: **Screw**

article	Rthk [K/W]	height [mm]
FI 345/18/SE	25	18
FI 345/30/SE	18	30

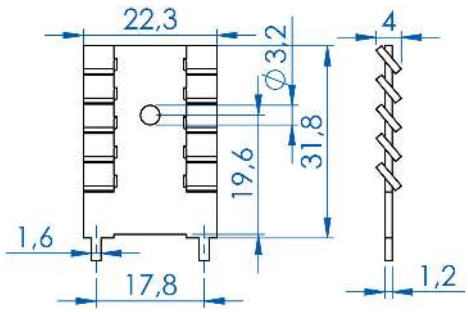
FI 355



For Casing: **TO 220** Device mounted by: **Screw**

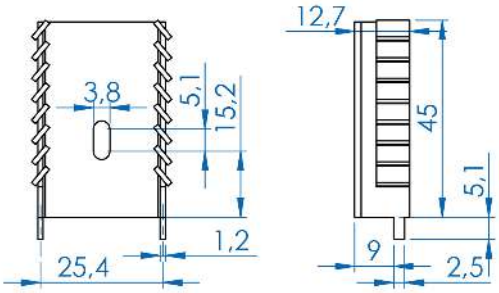
article	Rthk [K/W]	height [mm]
FI 355/11/SE	30	11
FI 355/19/SE	21	19

FI 300/SE



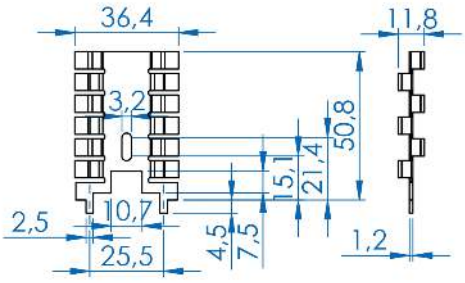
For Casing: **TO 220** Rthk: [K/W]: **27** Device mounted by: **Screw**

FI 307/SE



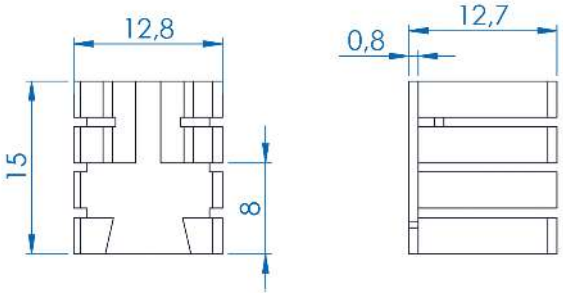
For Casing: **TO 220** Rthk: [K/W]: **13** Device mounted by: **Screw**

FI 308/SE



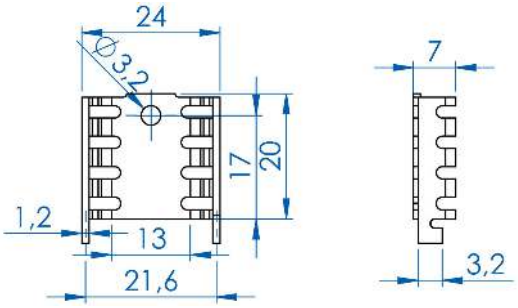
For Casing: **TO 220, TO 202** Rthk: [K/W]: **14** Device mounted by: **Screw**

FI 328/SE



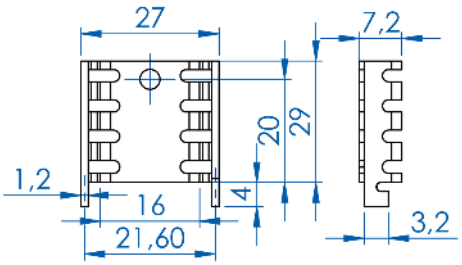
For Casing: **TO 220** Rthk: [K/W]: **26** Device mounted by: **Clip on**

FI 302/SE



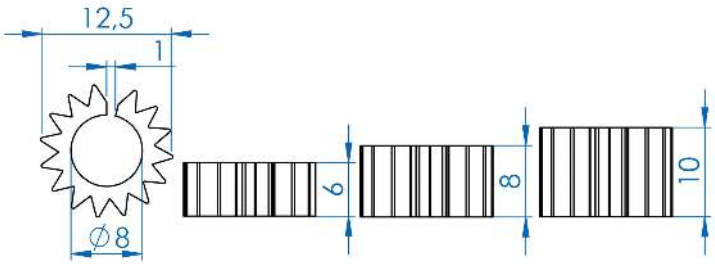
For Casing: **TO 220** Rthk: [K/W]: **21** Device mounted by: **Screw**

FI 303/SE



For Casing: **TO 220** Rthk: [K/W]: **20** Device mounted by: **Screw**

FE 372



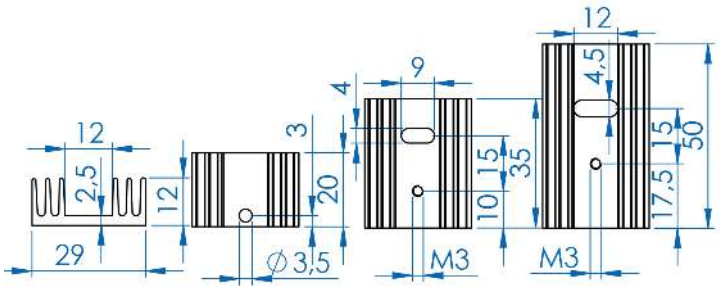
For Casing: **TO5, TO 39** Device mounted by: **Clip on**

article	Rthk [K/W]	height [mm]
FE372/6/AL	63	6
FE372/8/AL	54	8
FE372/10/AL	44	10

Questions?
We like to help out!
Call us at +49-2353-915-5

PR 19 with standard perforation

You will find the basic profile PR 20 in the section Heat Sink Extrusions with Gap on Fin Side

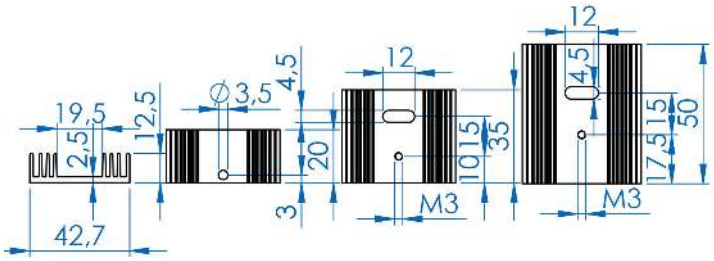


For Casing: **TO 220** Device mounted by: **Screw**

article	Rthk [K/W]	length [mm]
PR 19/20/SE	13.5	20
PR19/35/SE	12	35
PR 19/50/SE	9.5	50

PR 21 with standard perforation

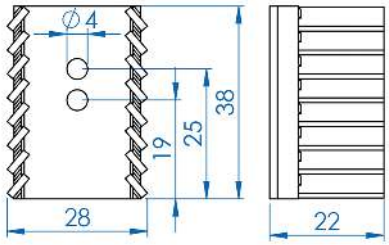
You will find the basic profile PR 22 in the section Heat Sink Extrusions with Gap on Fin Side



For Casing: **TO 220** Device mounted by: **Screw**

article	Rthk [K/W]	length [mm]
PR21/20/SE	11	20
PR21/35/SE	9.5	35
PR21/50/SE	8	50

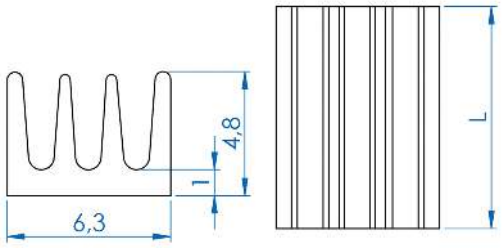
FI 356/SE



For Casing: **TO 220** Rthk: [K/W]: **9.9** Device mounted by: **Screw**

The attachment method of the following heat sinksis by double-sided adhesive, thermally conducting film, e.g. SI 0,13-DS.
Technical specifications for the Si 0,13-DS are given in the chapter Insulation + Heat Conduction / Silicone Washers.

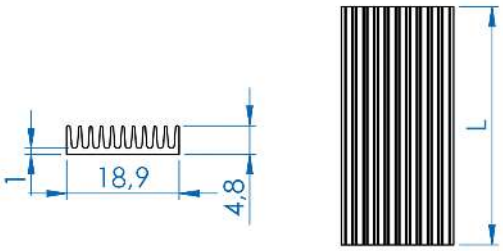
PR 7 standard lenght



For Casing: **DIL** Device mounted by: **adhesive**

article	Rthk [K/W]	length [mm]
PR 7/8,5/SE	80	8.5
PR 7/8,5/SE	73	10
PR 7/8,5/SE	48	19
PR 7/8,5/SE	32	23

PR8 standard lenght

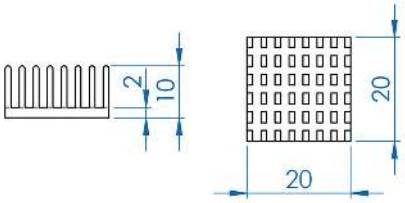


For Casing: **DIL** Device mounted by: **adhesive**

article	Rthk [K/W]	length [mm]
PR 8/6,3/SE	50	6.3
PR 8/33/SE	13	33
PR 8/37/SE	11	37
PR 8/47/SE	9.5	47
PR 8/51/SE	8.5	51

PG 2020/10/SE/SF

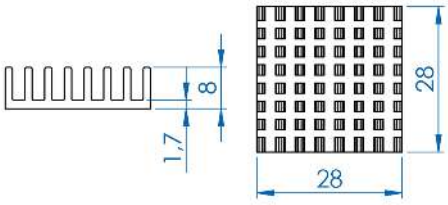
with already pre-mounted, double-sided adhesive foil



For Casing: **PGA, BGA, IC** Rthk: [K/W]: **18** Device mounted by: **adhesive**

PG 2828/8/SE/SF

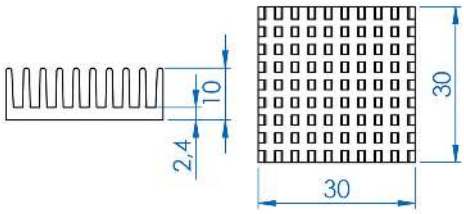
with already pre-mounted, double-sided adhesive foil



For Casing: **PGA, BGA, IC** Rthk: [K/W]: **11** Device mounted by: **adhesive**

PG 3030/10/SE/SF

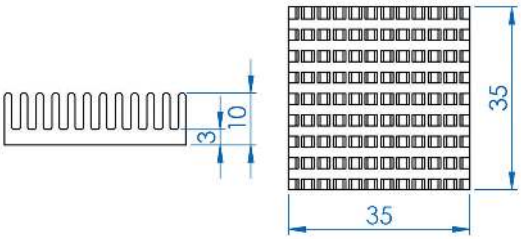
with already pre-mounted, double-sided adhesive foil



For Casing: **PGA, BGA, IC** Rthk: [K/W]: **9.6** Device mounted by: **adhesive**

PG 3535/10/SE/SF

with already pre-mounted, double-sided adhesive foil



For Casing: **PGA, BGA, IC** Rthk: [K/W]: **7.8** Device mounted by: **adhesive**

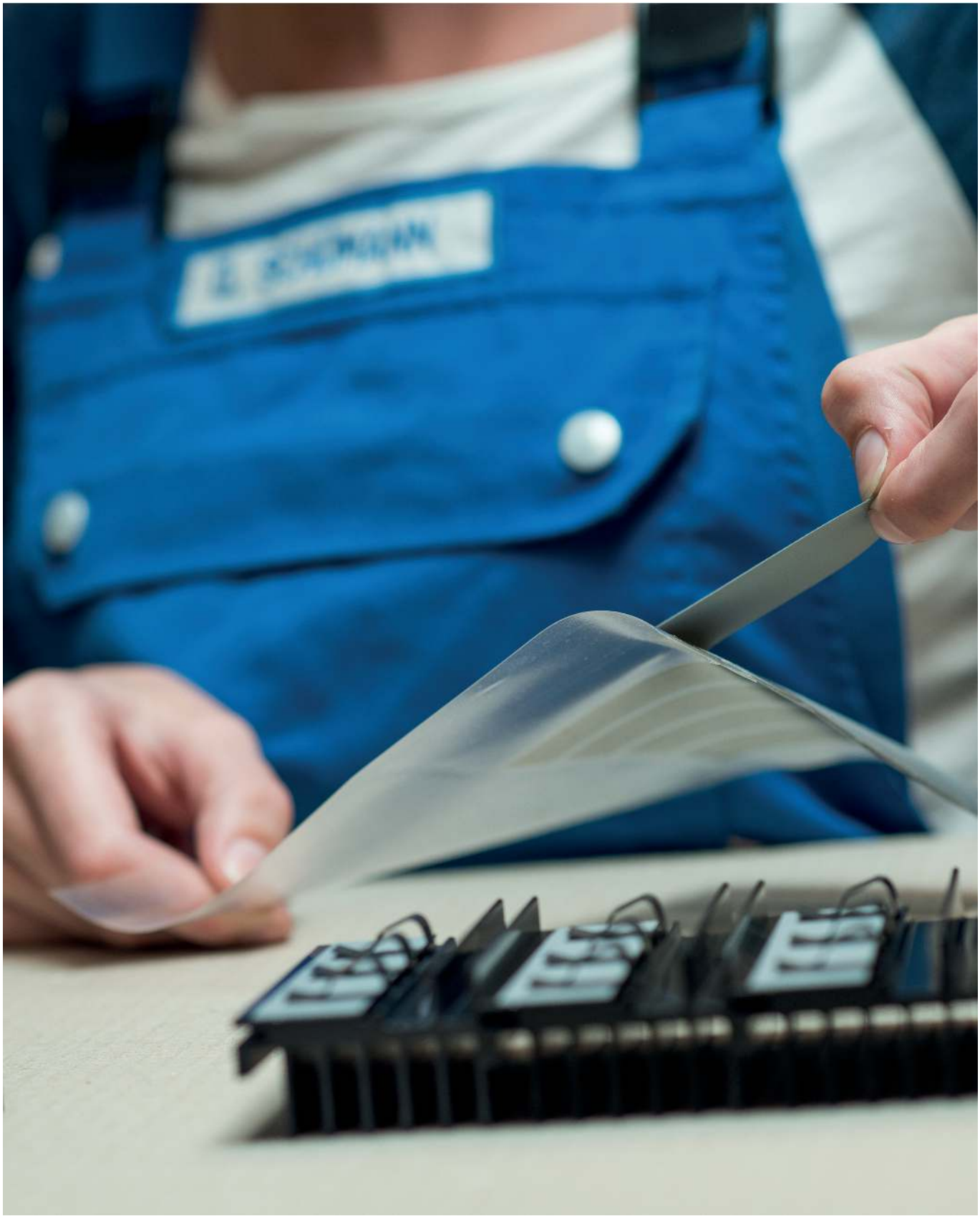
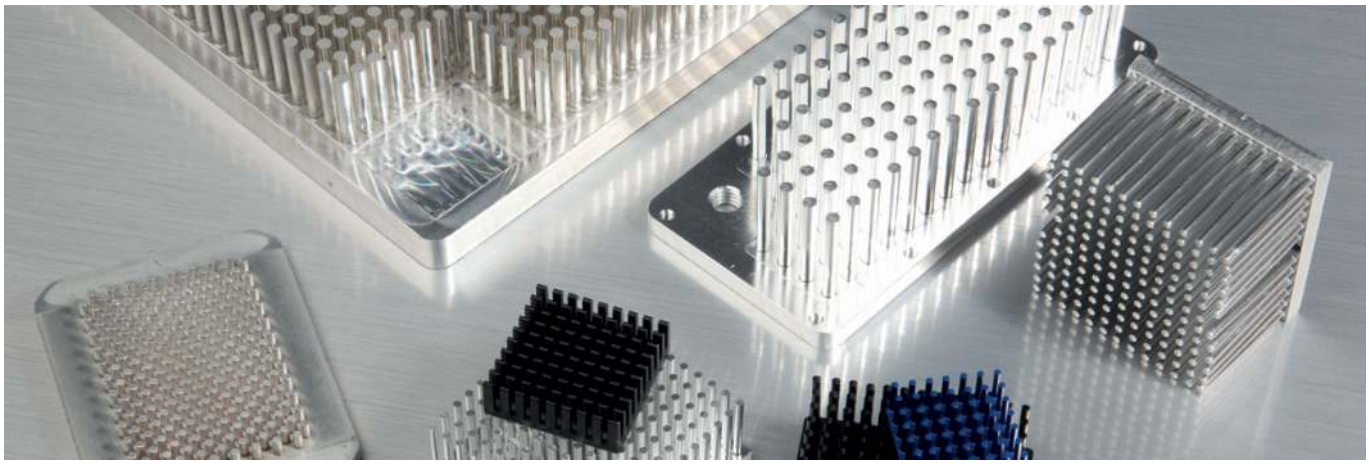


Table of Content



Our pin heat sinks are forged piece by piece from almost pure aluminum alloy (99.5%).
This ensures very low tolerances and excellent thermal conductivity.
You will also find the right solution from a large variety of versions.
Be it with thermally conducting foils or mechanically machined (with boreholes / threads):
You will get your ready-to-assemble solution quickly, economically and reliably.

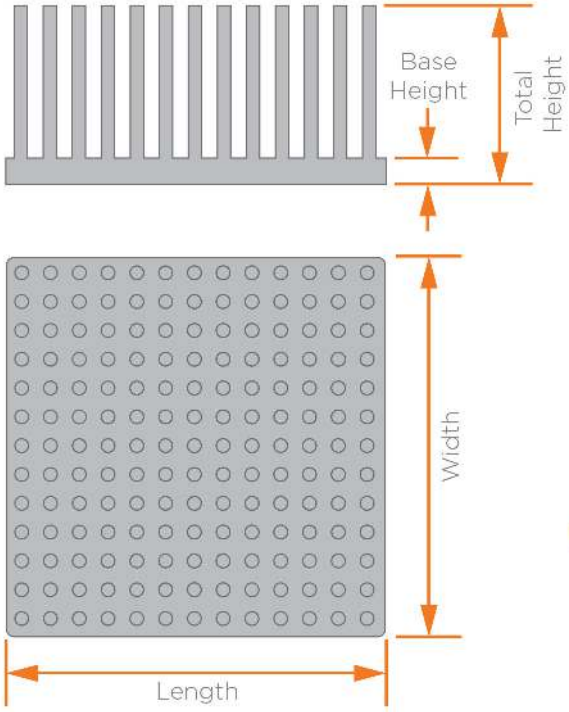
If you are unable to find solution you are looking for in this catalogue, please call us up.

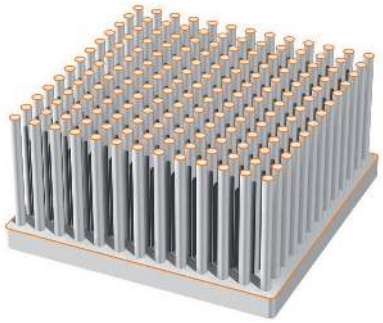
We are constantly expanding our range of products, and you can also get the latest information by visiting our website at www.alutronic.de

The thermal values specified have been determined with passive or active lateral ventilation.
Please request from us other thermal data such as for free convection or other flow directions (from above).

Apart from our standard designs, customised dimensions (floor thickness, number of pins etc.) and mechanical machining are possible.
All Powerblocs can be supplied with the surfaces AL = aluminium blank, CR = chrome-plated, NE = natural colours anodised, SE = black anodised or BL = blue anodised.
Similarly, we supply thermally conductive film adhesive on both sides on request, pre-assembled or for your own assembly and packaging.

This is how easily the article names of the power blocks are composed:





Length Total Height

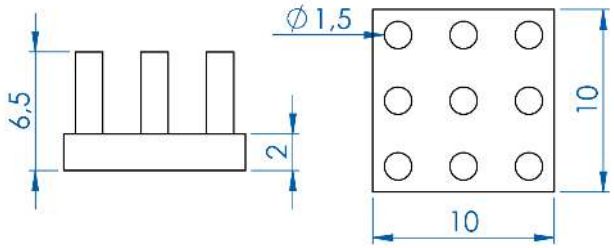
PO50-50-25-AL

Width Surface

Overview Standard Shapes

Mounting surface - rectangular	Lenght x Width [mm]	Base height [mm]	Total height [mm]	RthK [K/W]	Powerloss [W]	Pins
PO 10-10	10x10	2	6,5 / 12,5	112,5 / 84,5	0,5	9
PO 14-14	14x14	2	6 / 10	72,5 / 58,3	0,75	16
PO 17-17	17x17	3,5	15 / 25	7,2 / 5,3	5	25
PO 18-18	18x18	2	6,5 / 12,5	6,8 / 4,8	8	49
PO 25-25	25x25	2	6,5 / 10 / 12,5 / 18,5	6,1 - 3,2	9	49
PO30-30	30x30	3	13 / 33	2,5 / 1,6	20	64
PO 36-36	36x36	3,5	10 / 20	2,2 / 1,4	25	100
PO 40-40	40x40	3,5	10 / 20	1,5 / 1,1	40	121
PO 45-45	45x45	3,5	10 / 20	1,9 / 1,1	30	144
PO 50-50	50x50	3,5	25 / 45	0,9 / 0,7	65	81
	50x50	3,5	20 / 25	0,9 / 0,8	65	169
PO 75-50	75x50	5	15 / 35	1 / 0,6	55	96
PO 98-98	98x98	5	20 / 40	0,6 / 0,3	100 / 170	256
PO 100-75	100x75	5	15 / 35	0,4 / 0,3	80 / 120	255
PO 100-100	100x100	5	15 / 35	0,6 / 0,4	100	340
PO 120-60	120x60	5	25 / 45	0,4 / 0,3	120	240
PO 130-100	130x100	5	35	0,3	190	300
	130x100	5	35	0,3	200	638
PO 200-120	200x120	10	40	0,2	400	589
	200x120	10	40	0,1	550	1215
Mounting surface - round	**Diameter [mm]**	**Base height [mm]**	**Total height [mm]**	**RthK [K/W]**	**Powerloss [W]**	**Pins**
POR 28,5	28,5	2	6,5 / 18,5	48,3 / 26,5	1,2	44
POR 32,5	32,5	3	10 / 20	20,6 / 14,4	2,8	61
POR 36,5	36,5	3,5	10 / 20	18,6 / 13,1	3	68
POR 40	40	3	10 / 20	3,5 / 2,5	15	91
POR 50	50	3	10 / 20	2,2 / 1,5	25	127

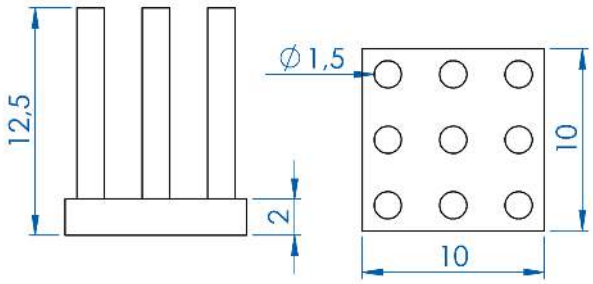
PO 10-10-6,5-AL



Rthk: [K/W]: **112.5**

Maximum Power Dissipation: [W]: **0.5** Convection type: **Passive**

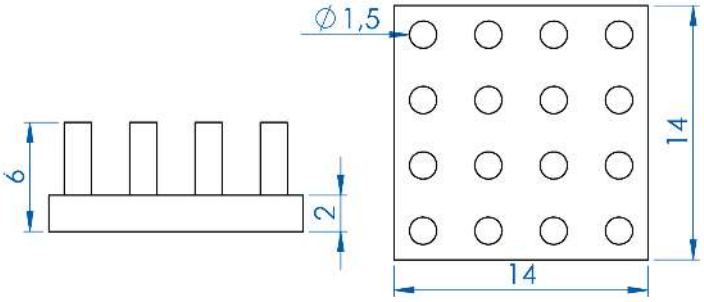
PO 10-10-12,5-AL



Rthk: [K/W]: **84.5**

Maximum Power Dissipation: [W]: **0.5** Convection type: **Passive**

PO 14-14-6-AL

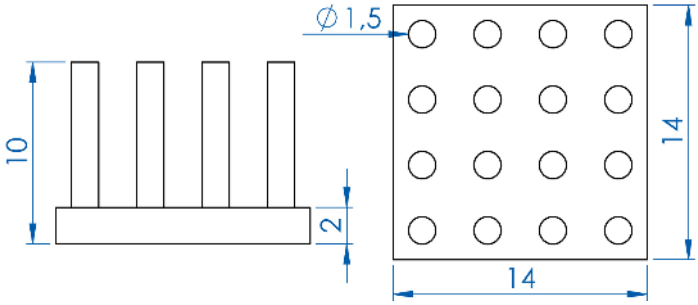


Rthk: [K/W]: **72.5**

Maximum Power Dissipation: [W]: **0.75**

Convection type: **Passive**

PO 14-14-10-AL

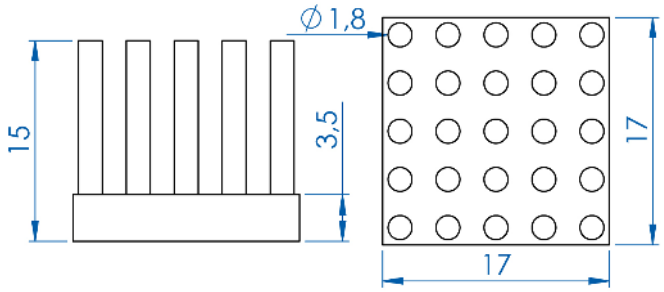


Rthk: [K/W]: **58.3**

Maximum Power Dissipation: [W]: **0.75**

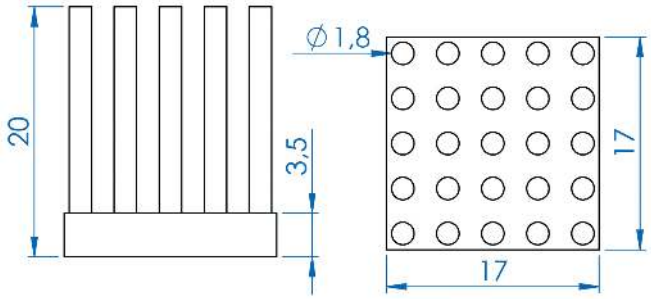
Convection type: **Passive**

PO 17-17-15-AL



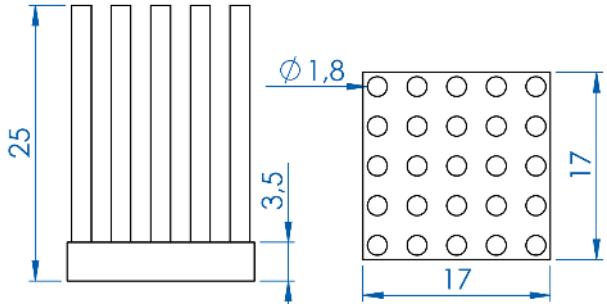
Rthk: [K/W]: **7.2** Maximum Power Dissipation: [W]: **5** Convection type: **Active (1 m/sec)**

PO 17-17-20-AL



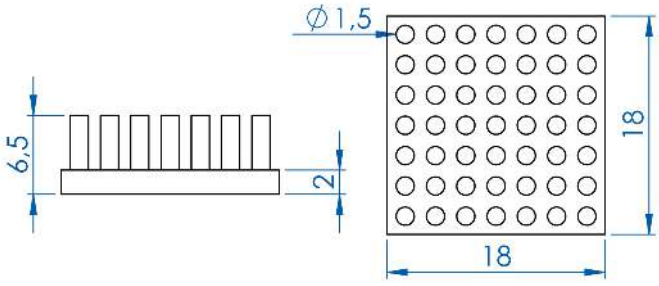
Rthk: [K/W]: **6.35** Maximum Power Dissipation: [W]: **5** Convection type: **Active (1 m/sec)**

PO 17-17-25-AL



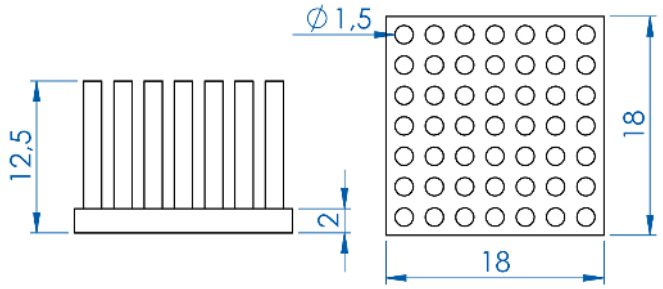
Rthk: [K/W]: **5.3** Maximum Power Dissipation: [W]: **5** Convection type: **Active (1 m/sec)**

PO 18-18-6,5-AL



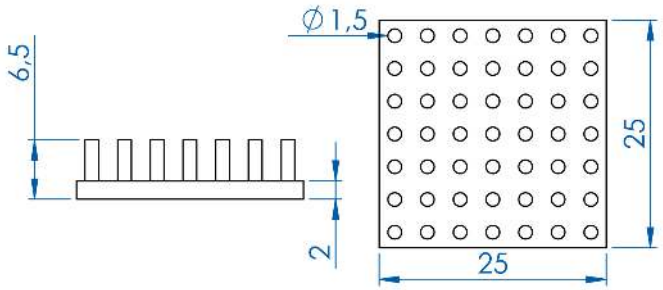
Rthk: [K/W]: **6.8** Maximum Power Dissipation: [W]: **8** Convection type: **Active (1 m/sec)**

PO 18-18-12,5-AL



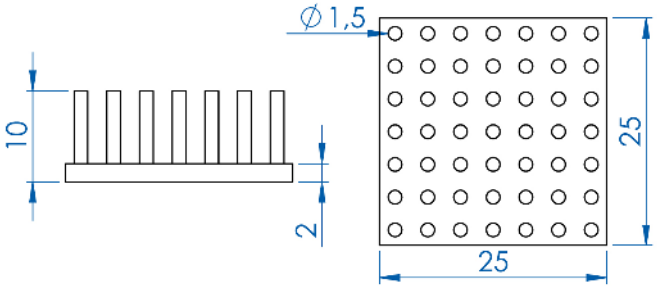
Rthk: [K/W]: **4.8** Maximum Power Dissipation: [W]: **8** Convection type: **Active (1 m/sec)**

PO 25-25-6,5-AL



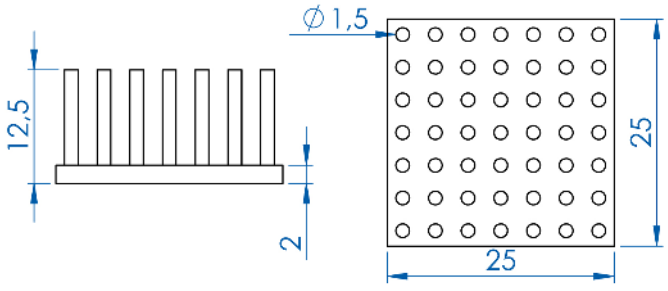
Rthk: [K/W]: **6.1** Maximum Power Dissipation: [W]: **9** Convection type: **Active (1 m/sec)**

PO 25-25-10-AL



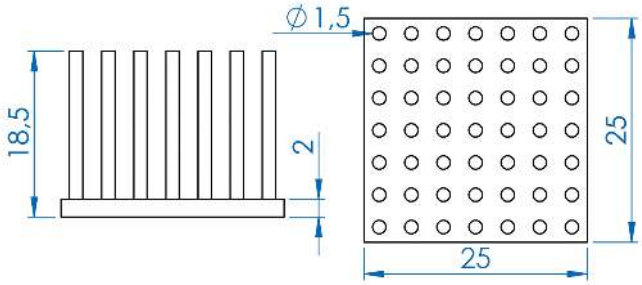
Rthk: [K/W]: **5.4** Maximum Power Dissipation: [W]: **9** Convection type: **Active (1 m/sec)**

PO 25-25-12,5-AL



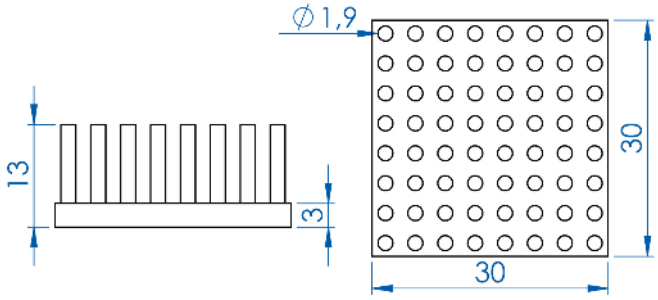
Rthk: [K/W]: **3.9** Maximum Power Dissipation: [W]: **9** Convection type: **Active (1 m/sec)**

PO 25-25-18,5-AL



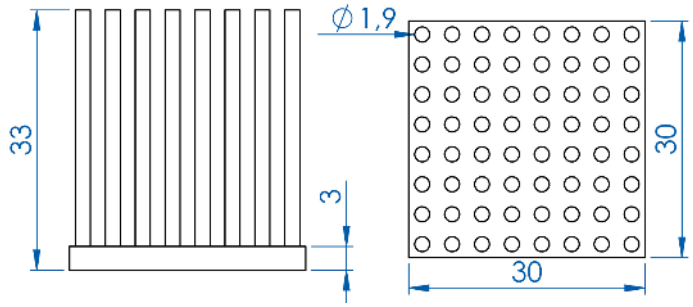
Rthk: [K/W]: **3.2** Maximum Power Dissipation: [W]: **9** Convection type: **Active (1 m/sec)**

PO 30-30-13-AL



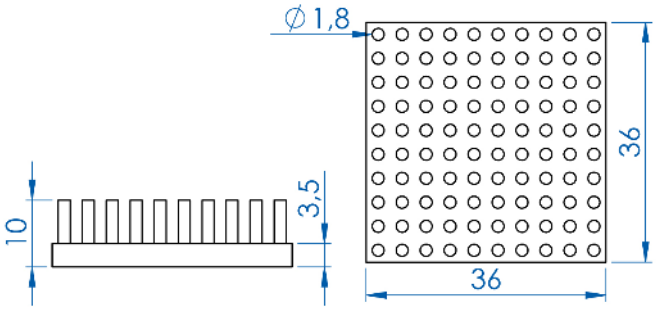
Rthk: [K/W]: **2.5** Maximum Power Dissipation: [W]: **20** Convection type: **Active (2 m/sec)**

PO 30-30-33-AL



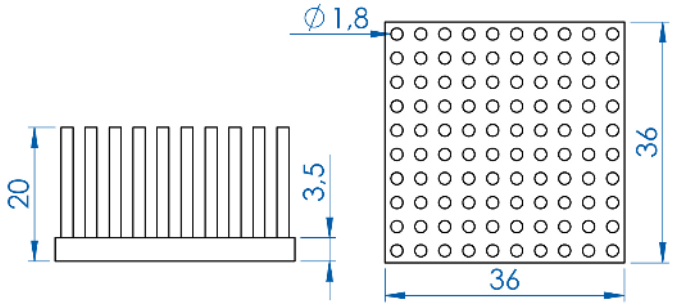
Rthk: [K/W]: **1.6** Maximum Power Dissipation: [W]: **20** Convection type: **Active (2 m/sec)**

PO 36-36-10-AL



Rthk: [K/W]: **2.2** Maximum Power Dissipation: [W]: **25** Convection type: **Active (2 m/sec)**

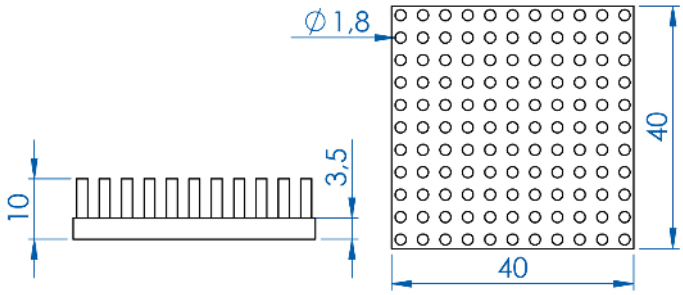
PO 36-36-20-AL



Rthk: [K/W]: **1.4**

Maximum Power Dissipation: [W]: **25** Convection type: **Active (2 m/sec)**

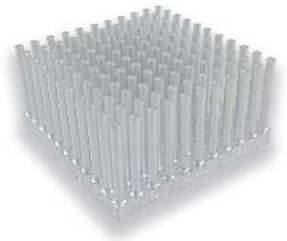
PO 40-40-10-AL

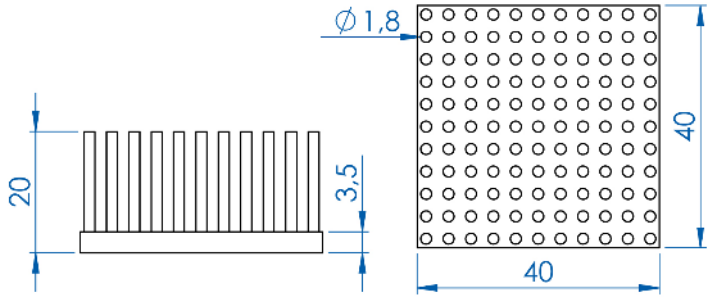


Rthk: [K/W]: **1.5**

Maximum Power Dissipation: [W]: **40** Convection type: **Active (2 m/sec)**

PO 40-40-20-AL

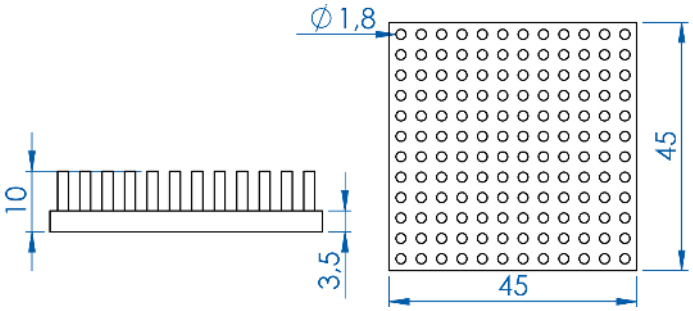




Rthk: [K/W]: **1.1**

Maximum Power Dissipation: [W]: **40** Convection type: **Active (2 m/sec)**

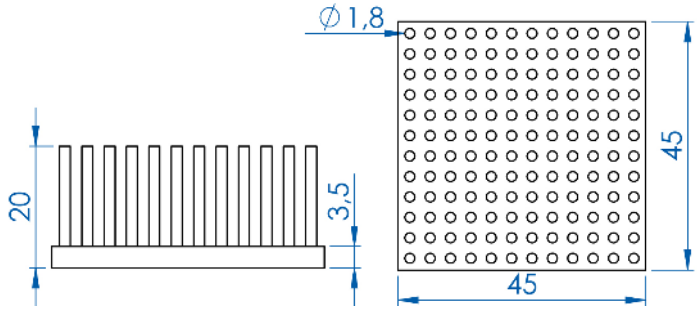
PO 45-45-10-AL



Rthk: [K/W]: **1.9**

Maximum Power Dissipation: [W]: **30** Convection type: **Active (2 m/sec)**

PO 45-45-20-AL

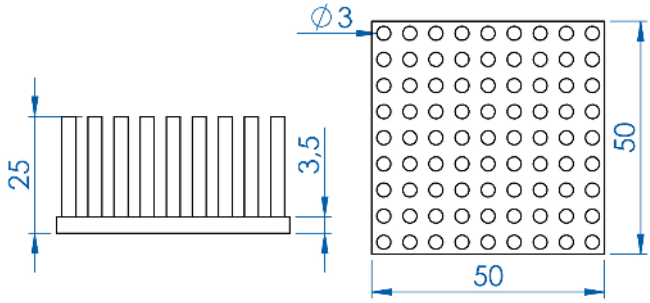


Rthk: [K/W]: **1.1**

Maximum Power Dissipation: [W]: **30** Convection type: **Active (2 m/sec)**

PO 50-50-25-AL

Features 81 pins

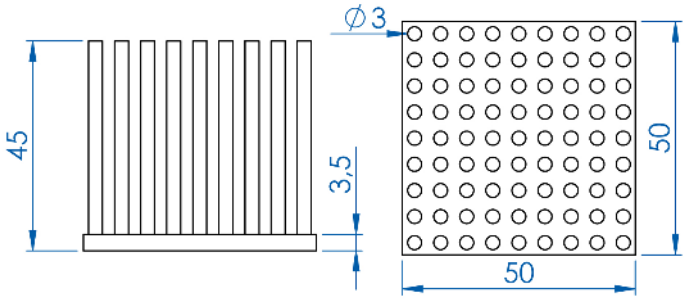


Rthk: [K/W]: **0.87**

Maximum Power Dissipation: [W]: **65** Convection type: **Active (2 m/sec)**

PO 50-50-45-AL

Features 81 pins

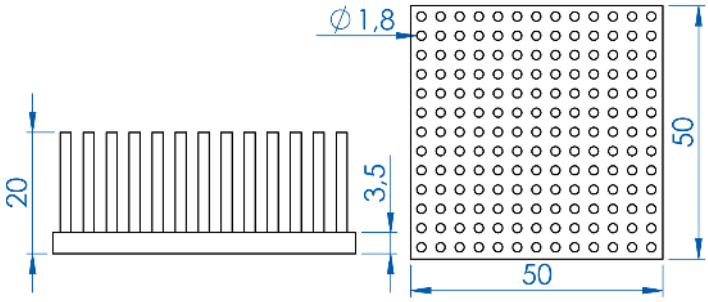


Rthk: [K/W]: **0.7**

Maximum Power Dissipation: [W]: **65** Convection type: **Active (2 m/sec)**

PO50-50-20-AL

Features 169 pins

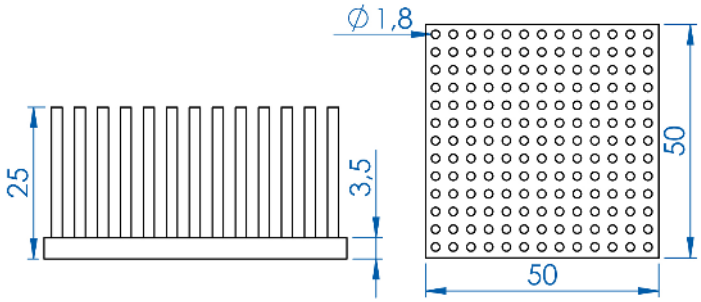


Rthk: [K/W]: **0.87**

Maximum Power Dissipation: [W]: **65** Convection type: **Active (2 m/sec)**

PO 50-50-25-AL-1

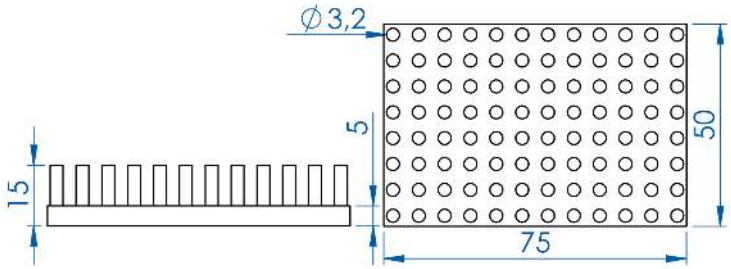
Features 169 pins



Rthk: [K/W]: **0.8**

Maximum Power Dissipation: [W]: **65** Convection type: **Active (2 m/sec)**

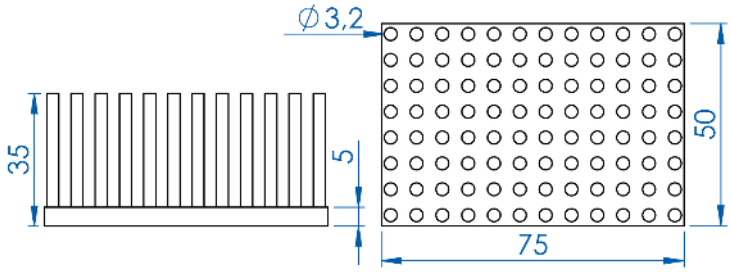
PO 75-50-15-AL



Rthk: [K/W]: **1**

Maximum Power Dissipation: [W]: **55** Convection type: **Active (2 m/sec)**

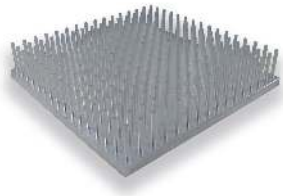
PO75-50-35-AL

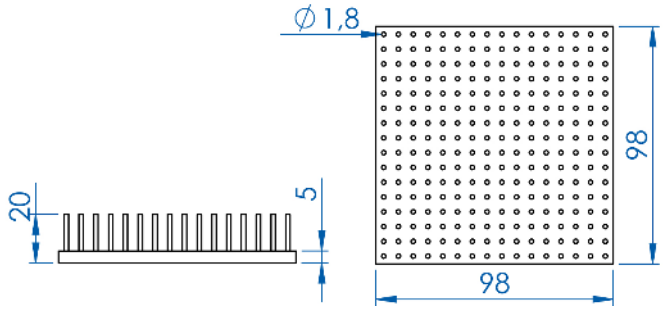


Rthk: [K/W]: **0.6**

Maximum Power Dissipation: [W]: **55** Convection type: **Active (2 m/sec)**

PO 98-98-20-AL



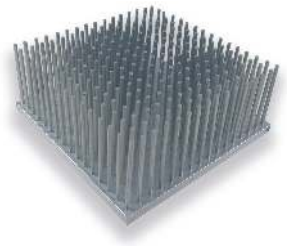


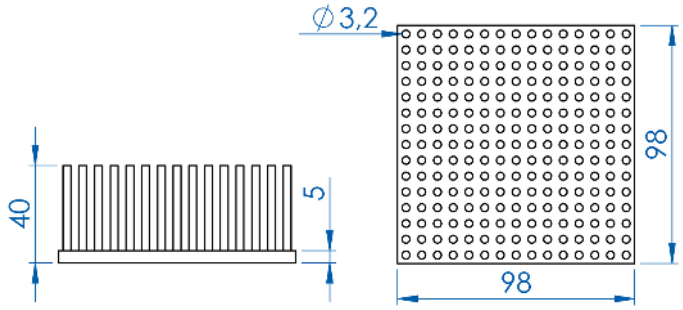
Rthk: [K/W]: **0.55**

Maximum Power Dissipation: [W]: **100** Convection type: **Active (2 m/sec)**

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

PO 98-98-40-AL

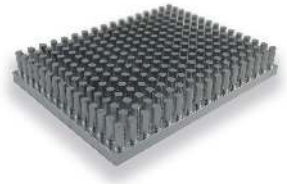


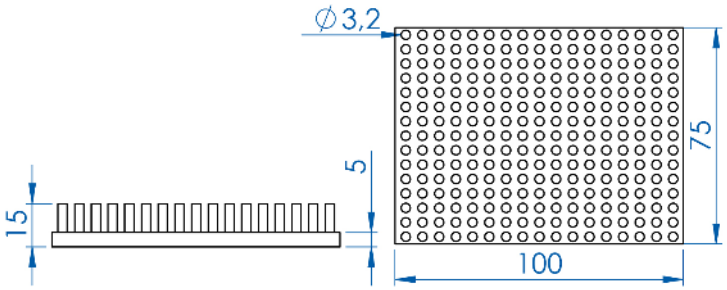


Rthk: [K/W]: **0.3**

Maximum Power Dissipation: [W]: **170** Convection type: **Active (2 m/sec)**

PO 100-75-15-AL

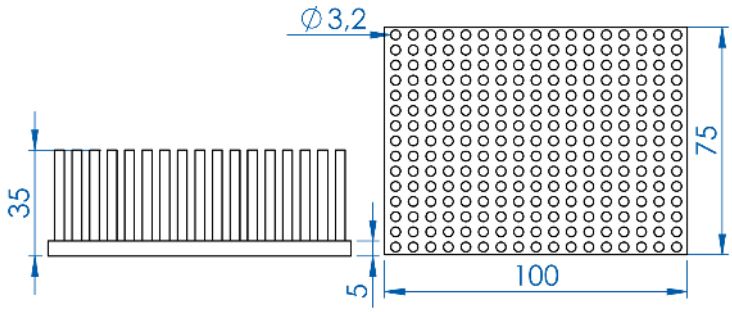




Rthk: [K/W]: **0.4**

Maximum Power Dissipation: [W]: **80** Convection type: **Active (2 m/sec)**

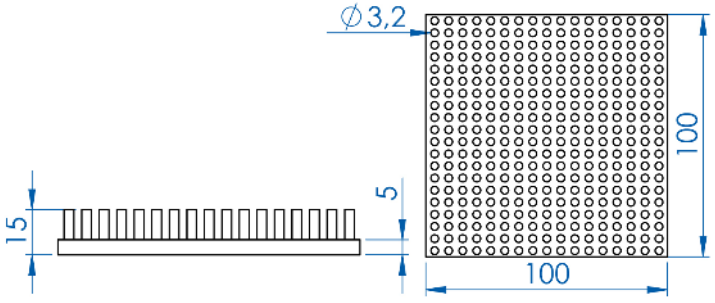
PO 100-75-35-AL



Rthk: [K/W]: **0.25**

Maximum Power Dissipation: [W]: **120** Convection type: **Active (2 m/sec)**

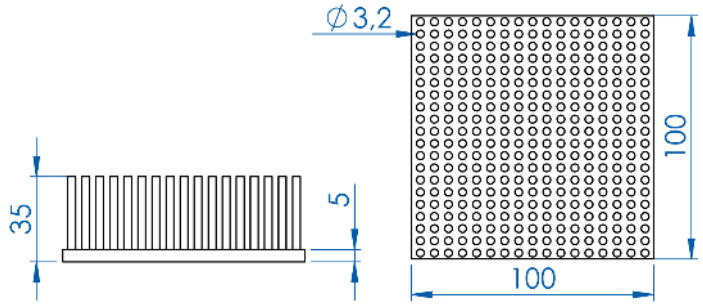
PO 100-100-15-AL



Rthk: [K/W]: **0.57**

Maximum Power Dissipation: [W]: **100** Convection type: **Active (2 m/sec)**

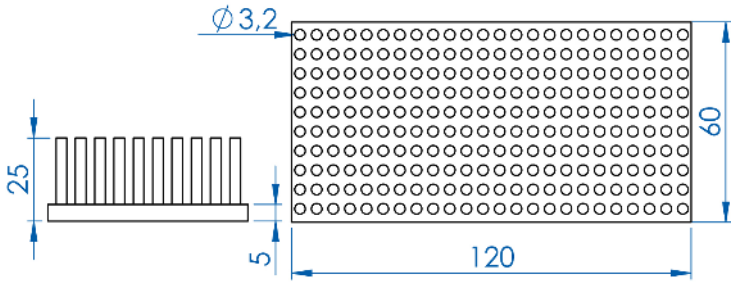
PO 100-100-35-AL



Rthk: [K/W]: **0.37**

Maximum Power Dissipation: [W]: **100** Convection type: **Active (2 m/sec)**

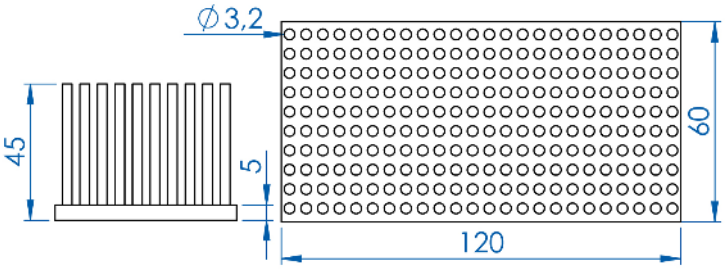
PO 120-60-25-AL



Rthk: [K/W]: **0.35**

Maximum Power Dissipation: [W]: **120** Convection type: **Active (2 m/sec)**

PO 120-60-45-AL

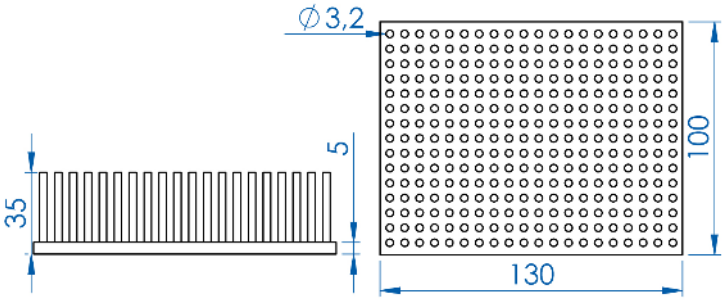


Rthk: [K/W]: **0.3**

Maximum Power Dissipation: [W]: **120** Convection type: **Active (2 m/sec)**

PO 130-100-35-AL

Features 300 pins

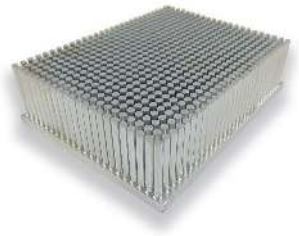


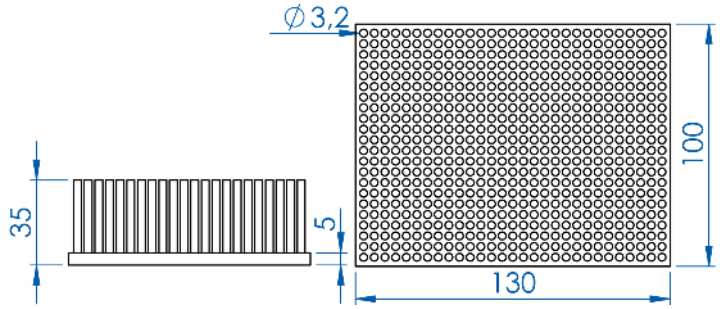
Rthk: [K/W]: **0.3**

Maximum Power Dissipation: [W]: **190** Convection type: **Active (2 m/sec)**

PO130-100-35-AL-1

Features 638 pins





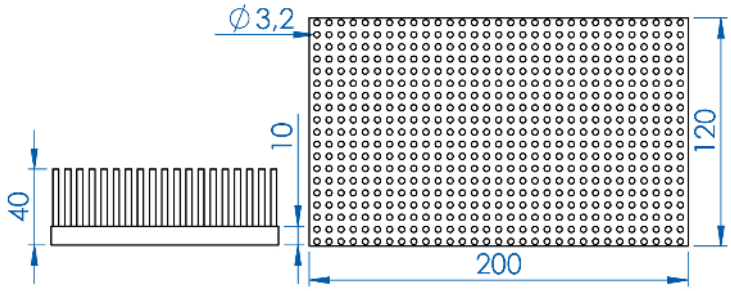
Rthk: [K/W]: **0.3**

Maximum Power Dissipation: [W]: **200**

Convection type: **Active (2 m/sec)**

PO 200-120-40-AL

Design with 689 pins
Power values with lateral ventilation



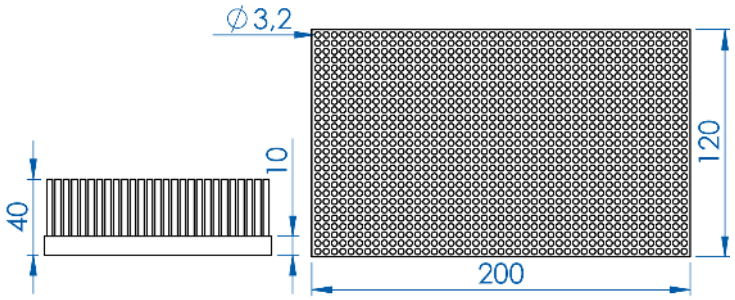
Rthk: [K/W]: **0.15**

Maximum Power Dissipation: [W]: **400**

Convection type: **Active (2 m/sec)**

PO 200-120-40-AL-1

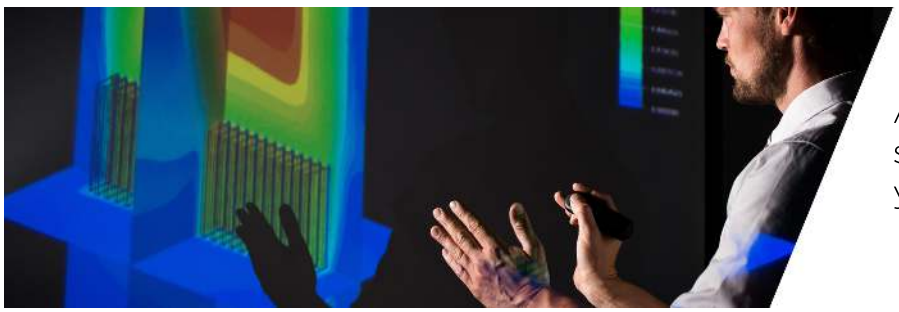
Design with 1.215 pins
Power values with lateral ventilation



Rthk: [K/W]: **0.12**

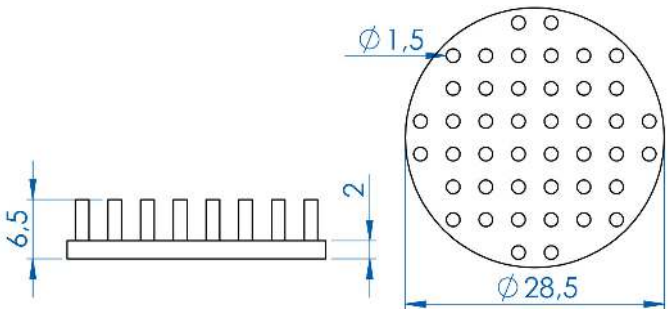
Maximum Power Dissipation: [W]: **550**

Convection type: **Active (2 m/sec)**



Alutronic offers thermal simulations to support your project!

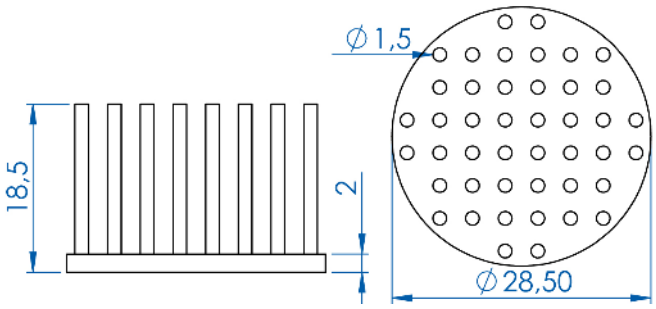
POR 28,5-6,5-AL



Rthk: [K/W]: **48.3**

Maximum Power Dissipation: [W]: **1.2** Convection type: **Passive**

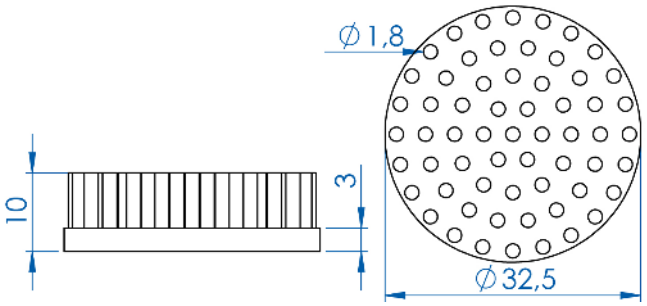
POR 28,5-18,5-AL



Rthk: [K/W]: **26.5**

Maximum Power Dissipation: [W]: **1.2** Convection type: **Passive**

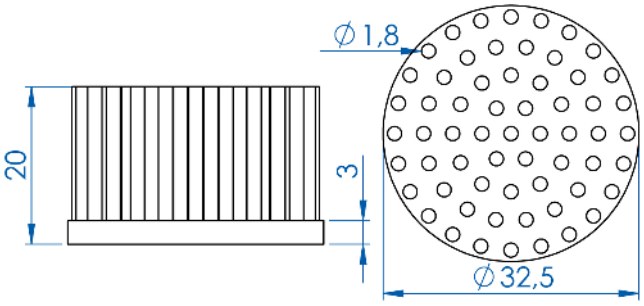
POR 32,5-10-AL



Rthk: [K/W]: **20.6**

Maximum Power Dissipation: [W]: **2.8** Convection type: **Passive**

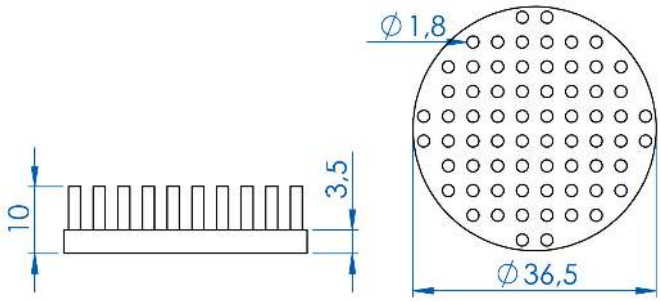
POR 32,5-20-AL



Rthk: [K/W]: **14.4**

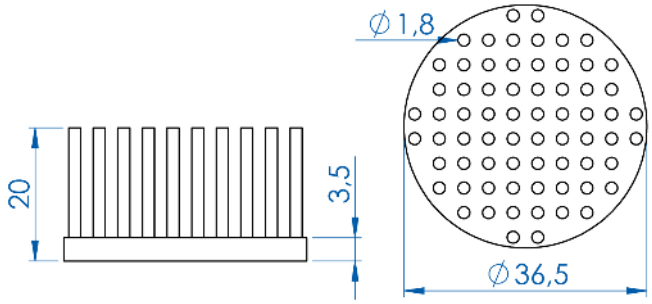
Maximum Power Dissipation: [W]: **2.8** Convection type: **Passive**

POR 36,5-10-AL



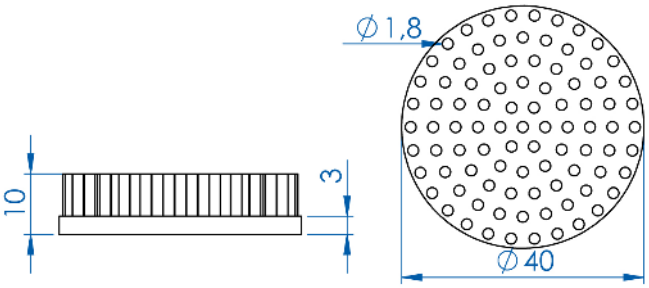
Rthk: [K/W]: **18.6** Maximum Power Dissipation: [W]: **3** Convection type: **Passive**

POR 36,5-20-AL



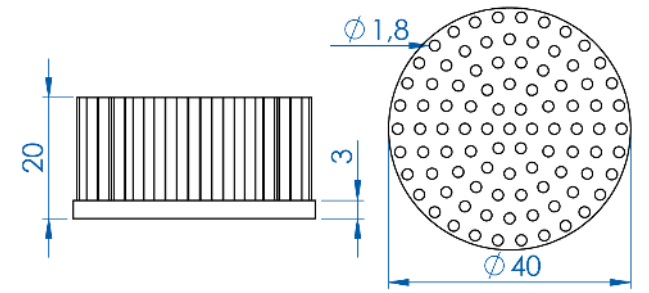
Rthk: [K/W]: **13.1** Maximum Power Dissipation: [W]: **3** Convection type: **Passive**

POR 40-10-AL



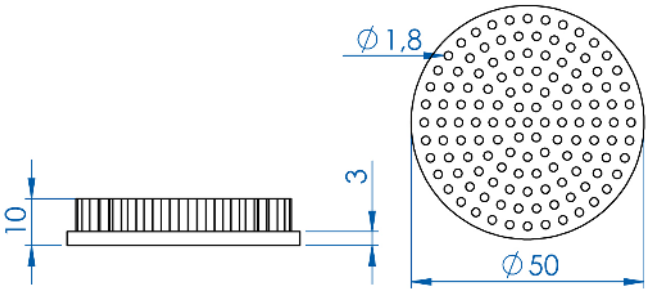
Rthk: [K/W]: **3.5** Maximum Power Dissipation: [W]: **15** Convection type: **Active (2 m/sec)**

POR 40-20-AL



Rthk: [K/W]: **2.5** Maximum Power Dissipation: [W]: **15** Convection type: **Active (2 m/sec)**

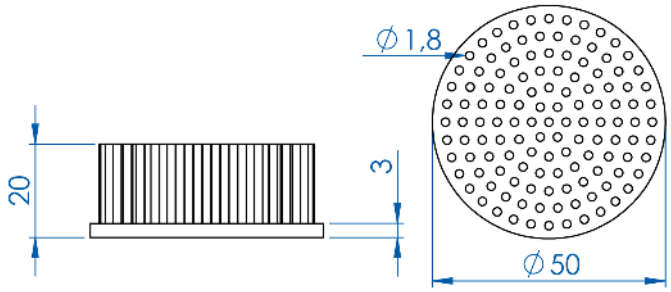
POR 50-10-AL



Rthk: [K/W]: **2.2**

Maximum Power Dissipation: [W]: **25** Convection type: **Active (2 m/sec)**

POR 50-20-AL



Rthk: [K/W]: **1.5**

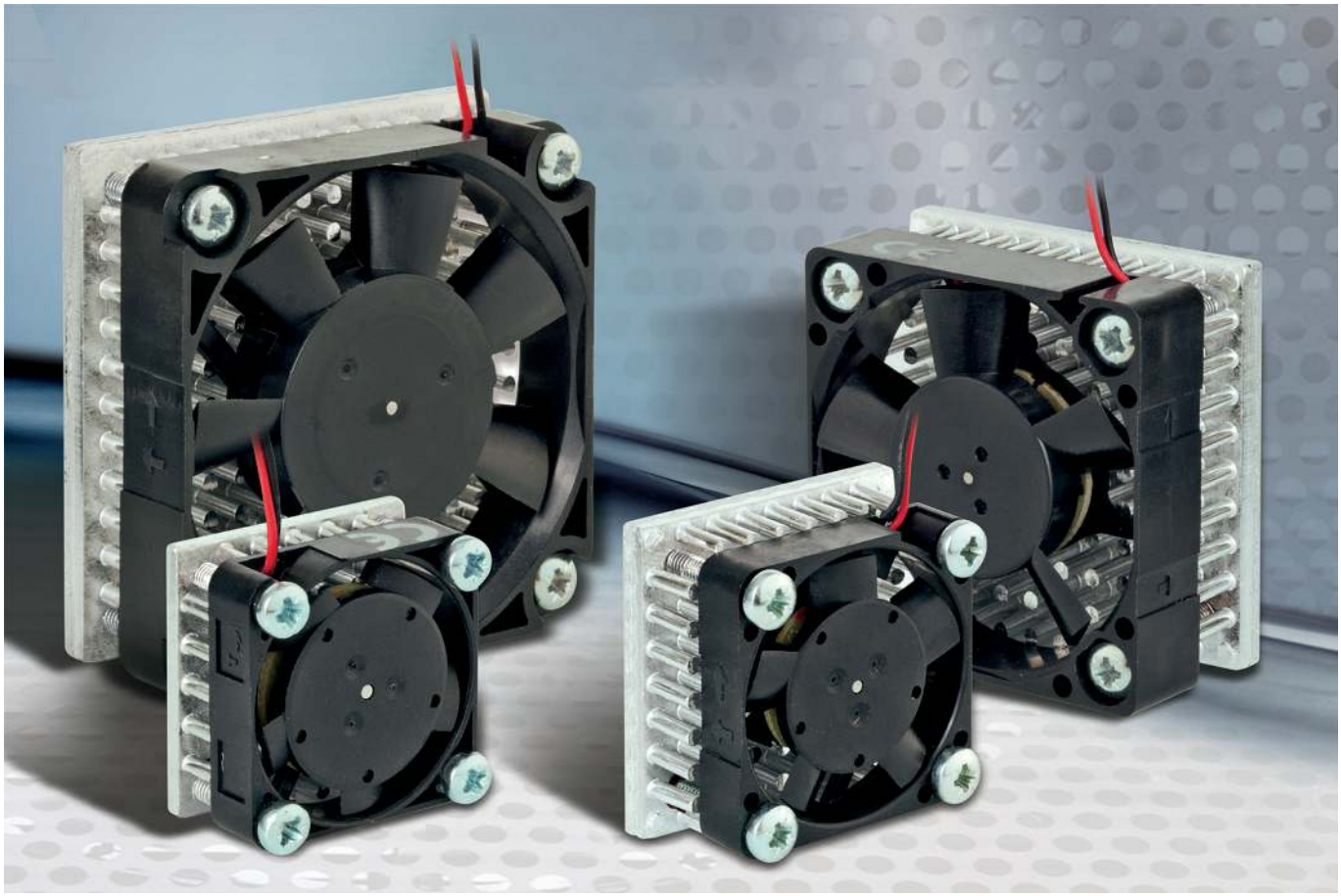
Maximum Power Dissipation: [W]: **25** Convection type: **Active (2 m/sec)**

www.tuv.com
TÜVRheinland®
ID:9105026417

Alutronic is certified since 2004 according to ISO 9001

Table of Content

For a range of it's heat sinks designed for forced convection, Alutronic offers pre-assembled, standardised cooling aggregates.
These standards offer a proven thermal solution for your electronic power device such as IGBTs or similar.
You can choose from several combinations of heat sinks, each at different lengths, with different options of high quality axial fans.
Also you can add a pressure chamber to the cooling aggregates.
The pressure chamber leads to a more even air flow throughout the length of the heat sink, thereby increasing its efficiency.
As always at Alutronic, feel free to contact us directly if you need any customisation done to our standard offer, or if you have any questions.
We are constantly expanding our range of products, and you can also get the latest information by visiting our website at www.alutronic.de

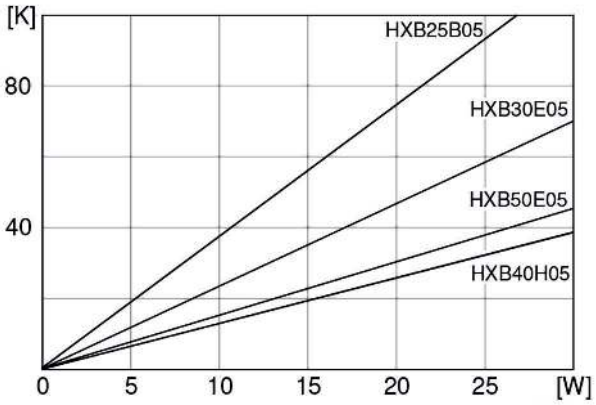


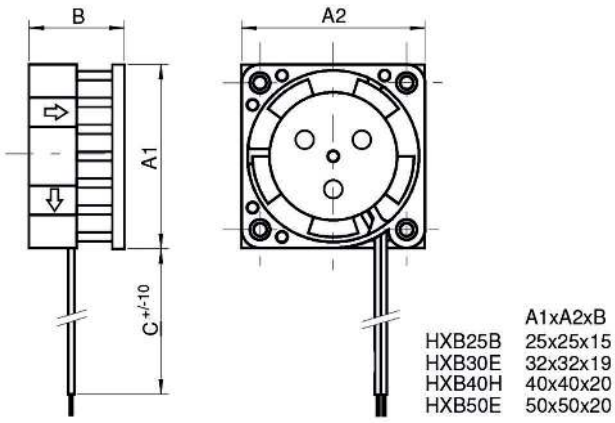
ALUTRONIC heat sink and SEPA Fan

From the fusion of ALUTRONIC heat sinks and SEPA fans the HXB models have been created. A combination, with which the fan distributes air through the heat sink for optimal cooling.

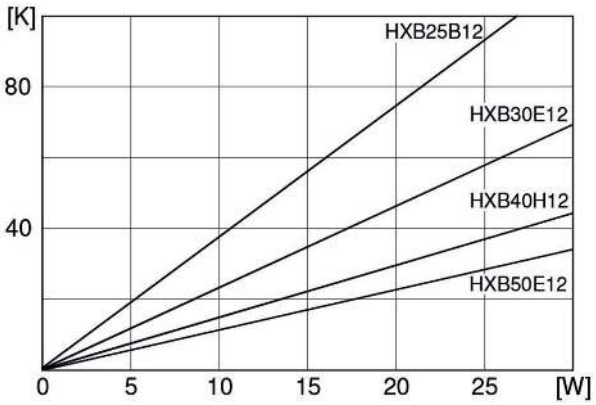
The coolers of the latest generation achieve a high flow rate with very low values of power consumption. As a result of the computer-supported development of the wing geometry, even the noise development has been optimised, and thus, the noise generated by a typical rotor speed of 11,000 rpm^{-1} is very quiet with a sound level of 21 dB(A) (e.g. HXB25B12).

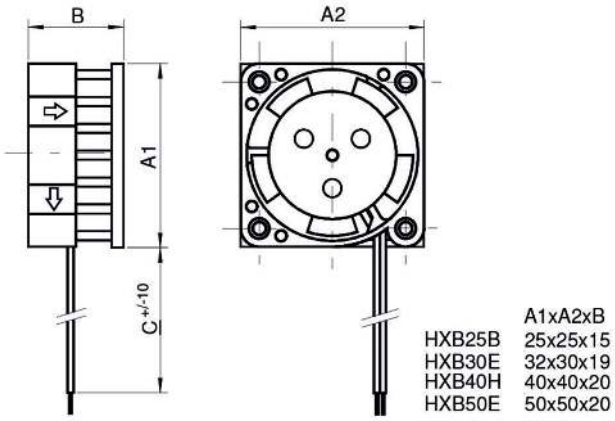
Another plus point is the long service life of 70,000 / 350,000 hours (L_{10} / MTBF at 40°C). Moreover, the chip coolers have an electronically commuted motor whose motor winding is switched by a special IC.
By a selection of suitable electronic components and high-quality ball bearings, the reliability of the fans is achieved at operating temperatures between -10 and +80 °C.





ARTICLE NAME		HXB25B05	HXB30E05	HXB40H05	HXB50E05
Operating voltage	[VDC]	4.5 ... 5 ... 5.5			
Typ. operating current	[mA]	40	90	90	50
Max. starts current	[mA]	120	130	250	120
Typ. thermal resistance	[K/W]	3,9	2,4	1,3	1,5
Typ. noise (1m dist. from air intake s.)	[dB(A)]	20	21	30	19
Typ. rotor speed	[RPM]	10000	8600	5800	3500
FG (...A)	[PPR]	3	3	2	2
Operating temperature	[°C]	-10 to +80			
Life expectancy L10/MTBF@ 40°C	[h]	70.000/350.000			
Bearing system		2 Ball bearings ZZ			
Weight	[g]	11	23	37	55



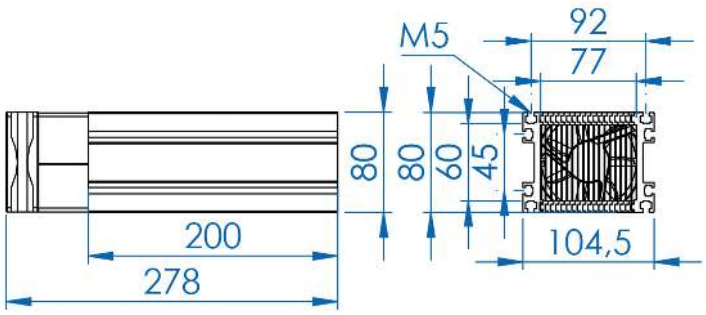


ARTICLE NAME		HXB25B12	HXB30E12	HXB40H12	HXB50E12
Operating voltage	[VDC]	10.2 ... 12 ... 13.8			
Typ. operating current	[mA]	30	30	60	60
Max. starts current	[mA]	80	70	90	140
Typ. thermal resistance	[K/W]	3,8	2,5	1,4	1,2
Typ. noise (1m dist. from air intake s.)	[dB(A)]	21	22	25	25
Typ. rotor speed	[RPM]	11000	9000	5500	4800
FG (...A)	[PPR]	3	3	2	2
Operating temperature	[°C]	-10 to +80			
Life expectancy L10/MTBF@ 40°C	[h]	70.000/350.000			
Bearing system		2 Ball bearings ZZ			
Weight	[g]	11	23	37	55

Fan units with axial blowers, also suitable for double-sided mounting of devices
- Optimisation by special lamella construction
- There are two assembly surfaces available for assembly of the semiconductor modules to be cooled, if necessary.
- The technical specifications are related to the fitting of a plane-milled assembly surface with uniform load distribution
- The pressure chamber between the fan and lamella unit ensures optimal air distribution on all blades.
- The safety regulations on technical equipment according to law must be observed and followed.

General technical specifications:
- The aluminium lamellas are chrome-plated for corrosion protection (RoHS-compliant)
- Assembly surface plane milled (R_Z max. 10 µm)
- Material AlMgSi 0.5 F22
- Plug-in channels for M5 threaded nuts according to DIN 562

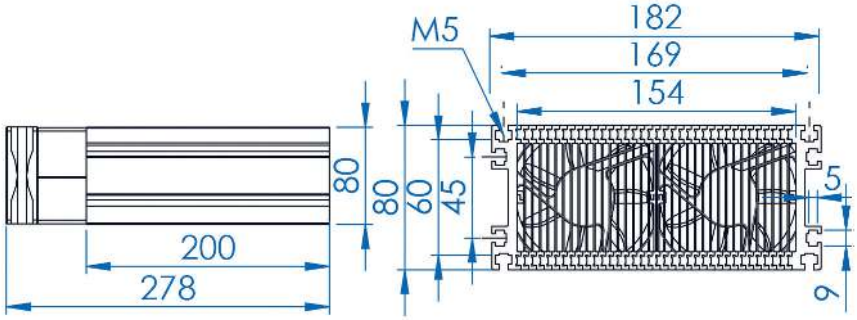
LK 10/200/A



Max. power loss: [W]: **200**

Min. thermal resistance: [K/W]: **0.131**

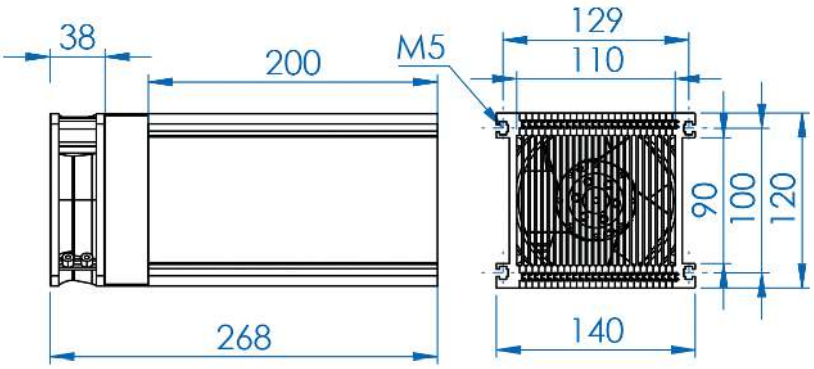
LK 20/200/A



Max. power loss: [W]: **400**

Min. thermal resistance: [K/W]: **0.068**

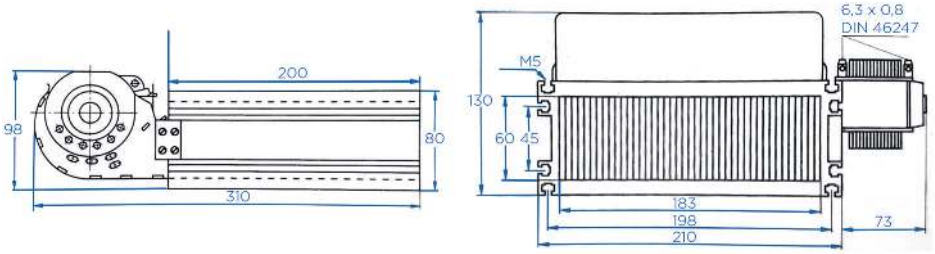
LK 30/200/A



Max. power loss: [W]: **400**

Min. thermal resistance: [K/W]: **0.073**

LK 40/200/Q



Max. power loss: [W]: **625**

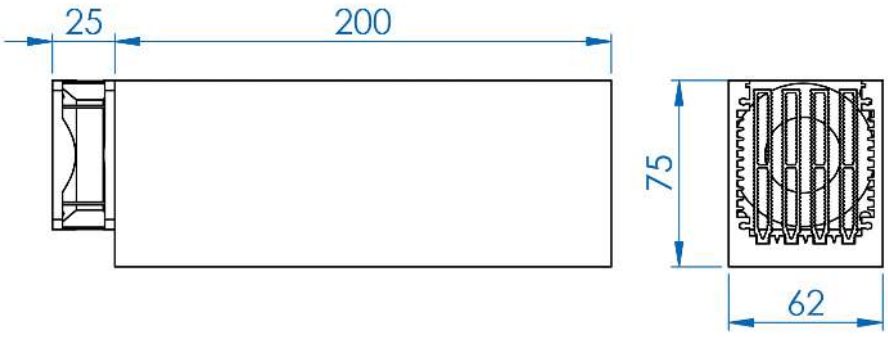
Min. thermal resistance: [K/W]: **0.044**

Our ERP system is programmed in-house and offers transparency and control- all the time!

The cooling aggregates of the PK series are designed for high capacity of heat dissipation.
The pre-milled mounting surface (R_z max 10µm) is ready for assembly.
Customised shapes are also possible upon request.
Detailed fan specifications you will find on www.alutronic.com.

PK715 including fan

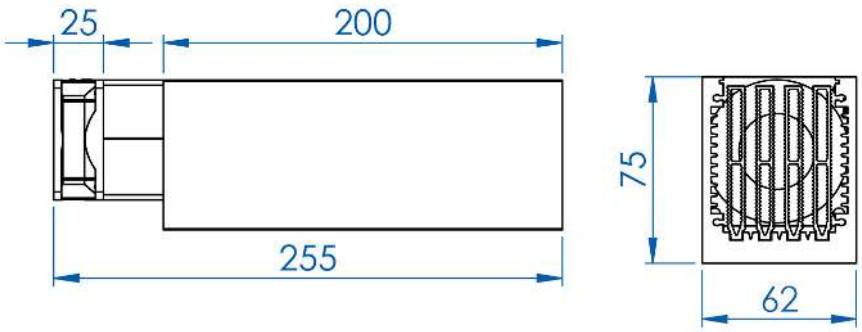
Alutronic extrusion PR715 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (12V or 24V)



article	Rth [K/W]	length [mm]
PK 715-100-AL-12V	0.21	100
PK 715-100-AL-24V	0.2	100
PK 715-200-AL-12V	0.15	200
PK 715-200-AL-24V	0.15	200
PK 715-300-AL-12V	0.12	300
PK 715-300-AL-24V	0.11	300

PK715 including fan and pressure chamber

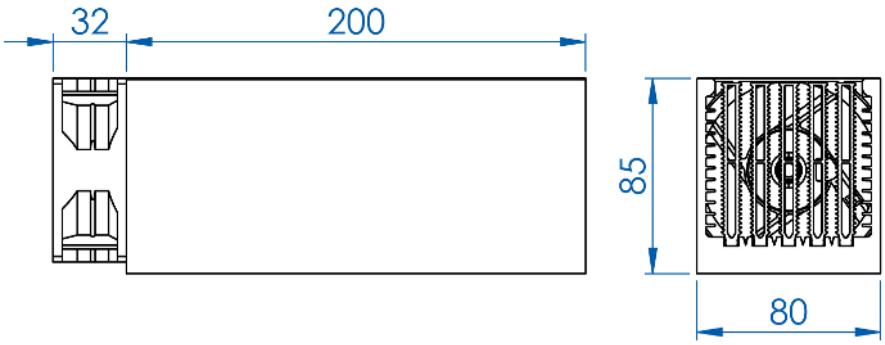
Alutronic extrusion PR715 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (12V or 24V)



article	Rth [K/W]	length [mm]
PK 715-100-AL-D12V	0.15	100
PK 715-100-AL-D24V	0.17	100
PK 715-200-AL-D12V	0.11	200
PK 715-200-AL-D24V	0.11	200
PK 715-300-AL-D12V	0.11	300
PK 715-300-AL-D24V	0.09	300

PK716 including fan

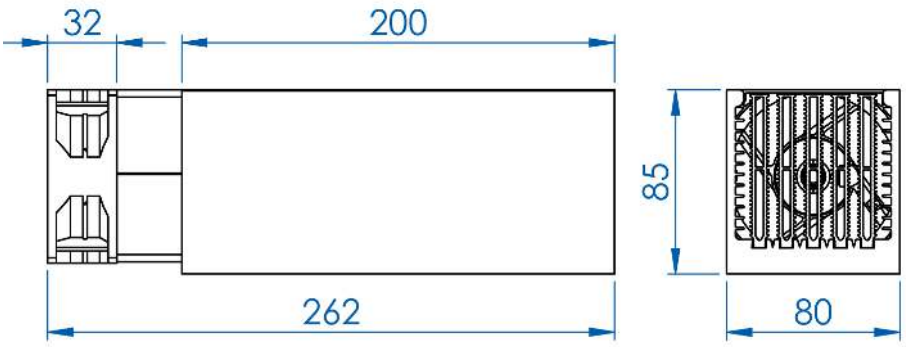
Alutronic extrusion PR716 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (24V DC or 230 V AC)



article	Rth [K/W]	length [mm]
PK 716-100-AL-24V	0.224	100
PK 716-100-AL-230V	0.28	100
PK 716-200-AL-24V	0.148	200
PK 716-200-AL-230V	0.204	200
PK 716-300-AL-24V	0.124	300
PK 716-300-AL-230V	0.177	300

PK716 including fan and pressure chamber

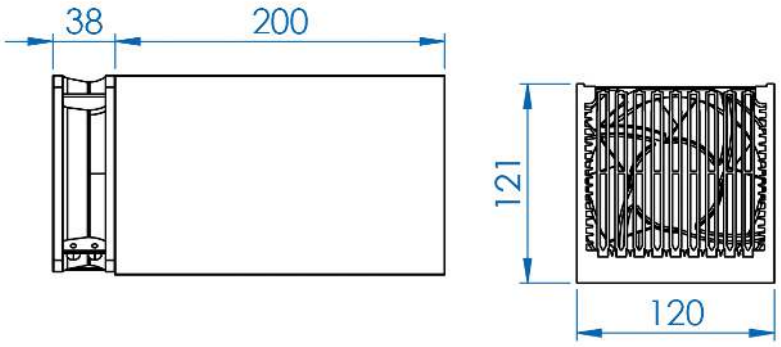
Alutronic extrusion PR716 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (24 V DC or 230 V AC)



article	Rth [K/W]	length [mm]
PK 716-100-AL-D24V	0.2	100
PK 716-100-AL-D230V	0.27	100
PK 716-200-AL-D24V	0.122	200
PK 716-200-AL-D230V	0.168	200
PK 716-300-AL-D24V	0.1	300
PK 716-300-AL-D230V	0.145	300

PK717 including fan

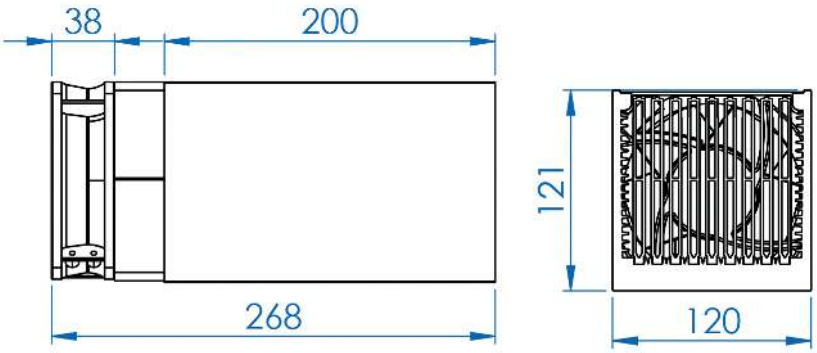
Alutronic extrusion PR717 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (24V DC or 230V AC)



article	Rth [K/W]	length [mm]
PK 717-100-AL-24V	0.14	100
PK 717-100-AL-230V	0.175	100
PK 717-200-AL-24V	0.075	200
PK 717-200-AL-230V	0.01	200
PK 717-300-AL-24V	0.072	300
PK 717-300-AL-230V	0.092	300

PK717 including fan and pressure chamber

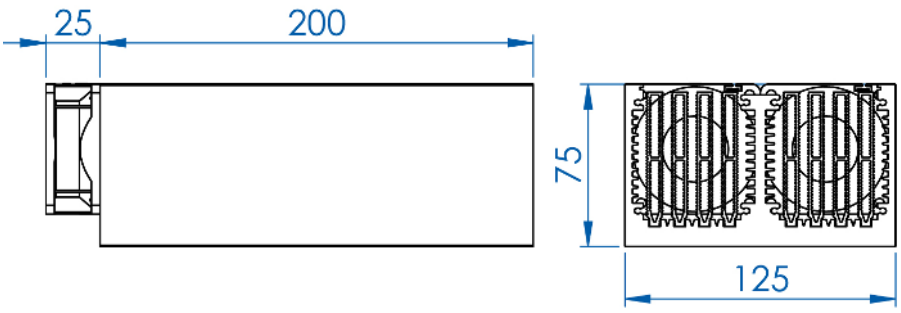
Alutronic extrusion PR717 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (24V DC or 230V AC)



article	Rth [K/W]	length [mm]
PK 717-100-AL-D24V	0.11	100
PK 717-100-AL-D230V	0.145	100
PK 717-200-AL-D24V	0.061	200
PK 717-200-AL-D230V	0.085	200
PK 717-300-AL-D24V	0.051	300
PK 717-300-AL-D230V	0.075	300

PK718 including fan

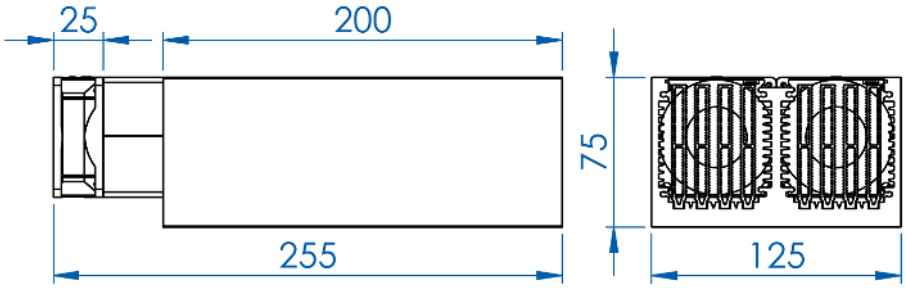
Alutronic extrusion PR718 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (12V or 24V)



article	Rth [K/W]	length [mm]
PK 718-100-AL-12V	0.11	100
PK 718-100-AL-24V	0.1	100
PK 718-200-AL-12V	0.075	200
PK 718-200-AL-24V	0.075	200
PK 718-300-AL-12V	0.055	300
PK 718-300-AL-24V	0.045	300

PK718 including fan and pressure chamber

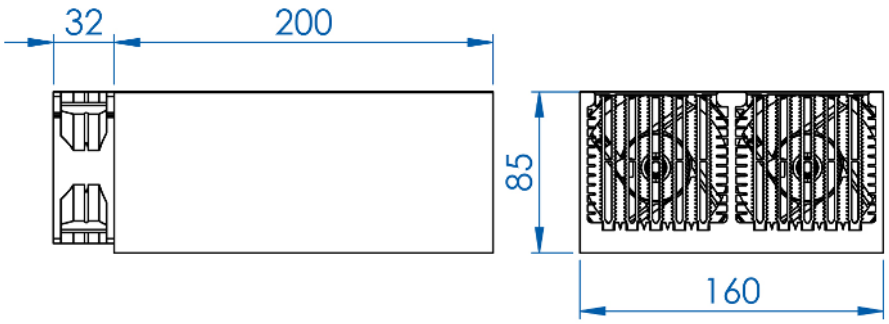
Alutronic extrusion PR718 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (12V or 24V)



article	Rth [K/W]	length [mm]
PR 718-100-AL-D12V	0.1	100
PR 718-100-AL-D24V	0.1	100
PR 718-200-AL-D12V	0.06	200
PR 718-200-AL-D24V	0.058	200
PR 718-300-AL-D12V	0.045	300
PR 718-300-AL-D24V	0.042	300

PK719 including fan

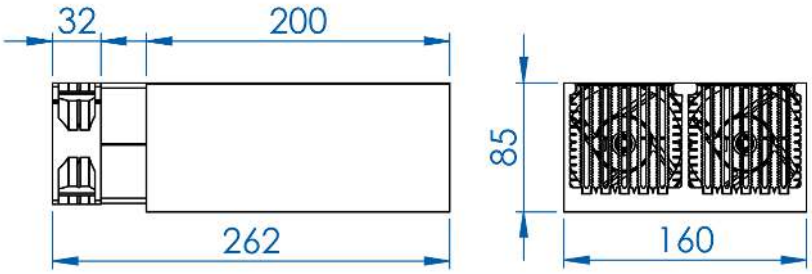
Alutronic extrusion PR719 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (24V DC or 230V AC)



article	Rth [K/W]	length [mm]
PK 719-100-AL-24V	0.185	100
PK 719-100-AL-230V	0.28	100
PK 719-200-AL-24V	0.08	200
PK 719-200-AL-230V	0.11	200
PK 719-300-AL-24V	0.145	300
PK 719-300-AL-230V	0.18	300

PK719 including fan and pressure chamber

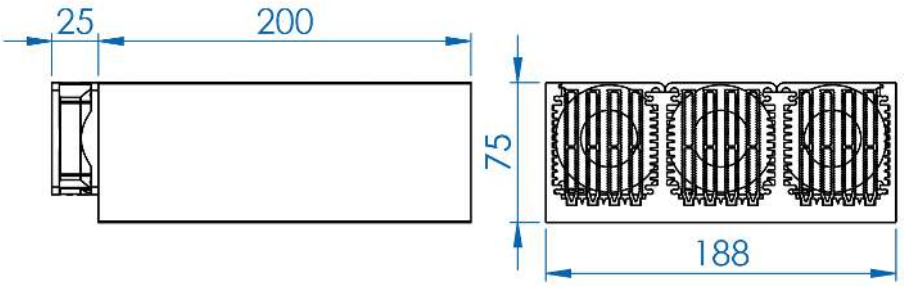
Alutronic extrusion PR719 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (24V DC or 230V AC)



article	Rth [K/W]	length [mm]
PK 719-100_AL_D24V	0.152	100
PK 719-100_AL_D230V	0.18	100
PK 719-200_AL_D24V	0.075	200
PK 719-200_AL_D230V	0.1	200
PK 719-300_AL_D24V	0.065	300
PK 719-300_AL_D230V	0.085	300

PK721 including fan

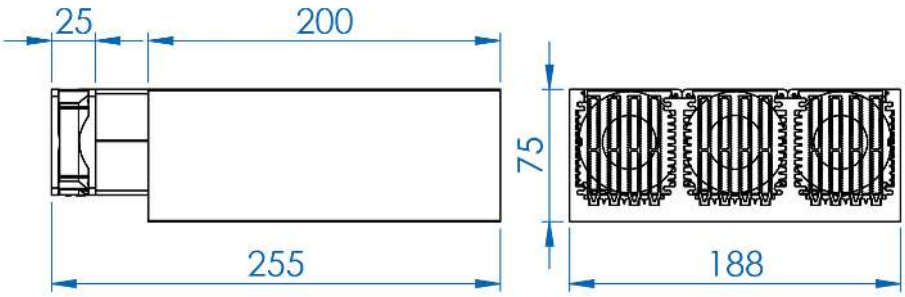
Alutronic extrusion PR721 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (12V or 24V)



article	Rth [K/W]	length [mm]
PK 721-100-AL-12V	0.075	100
PK 721-100-AL-24V	0.075	100
PK 721-200-AL-12V	0.05	200
PK 721-200-AL-24V	0.05	200
PK 721-300-AL-12V	0.041	300
PK 721-300-AL-24V	0.041	300

PK721 including fan and pressure chamber

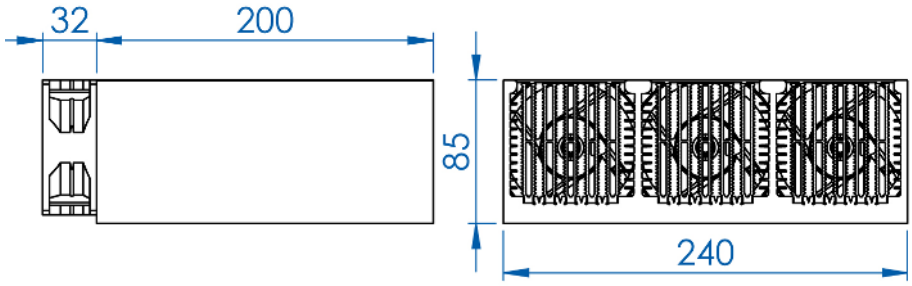
Alutronic extrusion PR721 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (12V or 24V)



article	Rth [K/W]	length [mm]
PK 721-100-AL-D12V	0.068	100
PK 721-100-AL-D24V	0.068	100
PK 721-200-AL-D12V	0.039	200
PK 721-200-AL-D24V	0.04	200
PK 721-300-AL-D12V	0.03	300
PK 721-300-AL-D24V	0.022	300

PK712 including fan

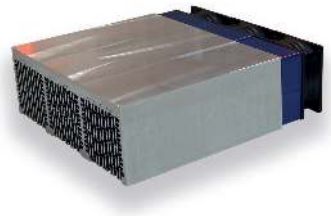
Alutronic extrusion PR712 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (24V DC or 230V AC)

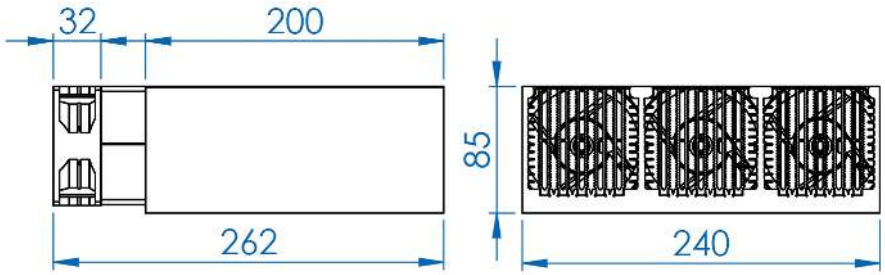


article	Rth [K/W]	length [mm]
PK 712-100-AL-24V	0.095	100
PK 712-100-AL-230V	0.115	100
PK 712-200-AL-24V	0.06	200
PK 712-200-AL-230V	0.075	200
PK 712-300-AL-24V	0.048	300
PK 712-300-AL-230V	0.06	300

PK712 including fan and pressure chamber

Alutronic extrusion PR712 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (24V DC or 230V AC)

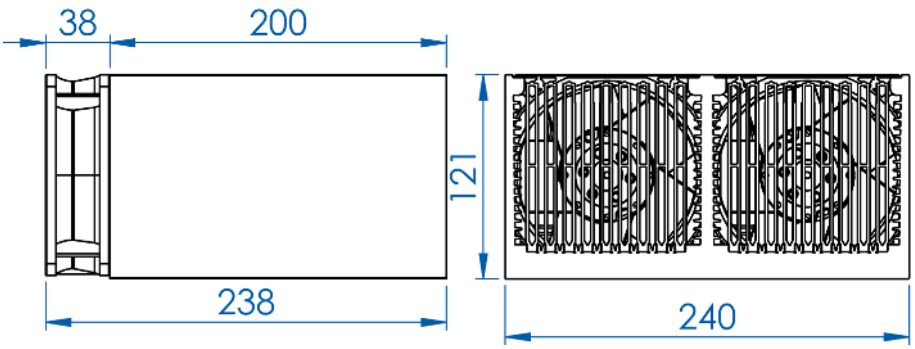




article	Rth [K/W]	length [mm]
PK 712-100-AL-D24V	0.09	100
PK 712-100-AL-D230V	0.12	100
PK 712-200-AL-D24V	0.055	200
PK 712-200-AL-D230V	0.065	200
PK 712-300-AL-D24V	0.048	300
PK 712-300-AL-D230V	0.055	300

PK720 including fan

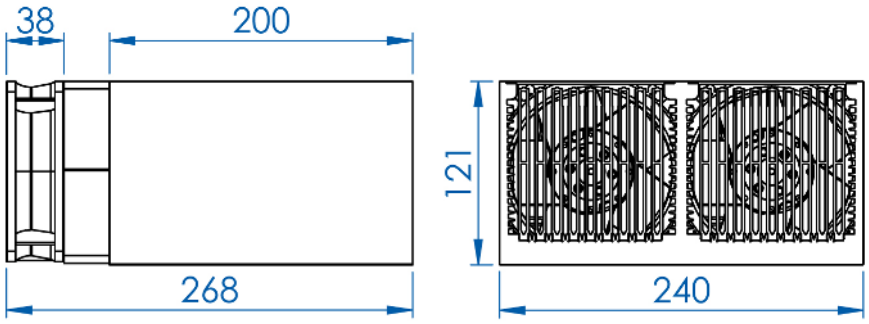
Alutronic extrusion PR717 with pre-milled mounting surface, inserted sheet to channel airflow and pre-mounted fan (24V DC or 230V AC)



article	Rth [K/W]	length [mm]
PK 720-100-AL-24V	0.07	100
PK 720-100-AL-230V	0.175	100
PK 720-200-AL-24V	0.075	200
PK 720-200-AL-230V	0.05	200
PK 720-300-AL-24V	0.033	300
PK 720-300-AL-230V	0.042	300

PK720 including fan and pressure chamber

Alutronic extrusion PR717 with premilled mounting surface, inserted sheet to channel airflow, pressure chamber and pre-mounted fan (24V DC or 230V AC)



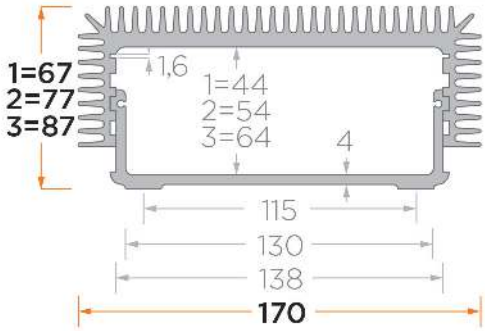
article	Rth [K/W]	length [mm]
PK 720-100-AL-D24V	0.065	100
PK 720-100-AL-D230V	0.075	100
PK 720-200-AL-D24V	0.035	200
PK 720-200-AL-D230V	0.045	200
PK 720-300-AL-D24V	0.031	300
PK 720-300-AL-D230V	0.042	300

Table of Content

Alutronic now offers an increased variety of standard casings for your electronics. Designed to protect your electronic solutions, these casings fit 19” environments or individual applications.
We are dedicated to high visual quality and as with all other products from Alutronic, we are glad to realize any customisation you may require.

Heat Sink Casing WG 4291 - WG 4292 - WG 4293

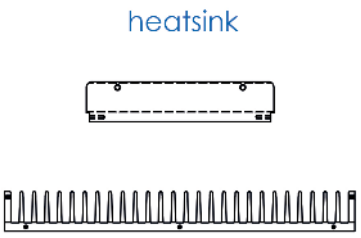
- Robust profile casing made of AlMgSi 0.5 F 22 with integrated cooling fins
- Side wall with integrated guide grooves
- For holding non-standard components or Euro boards
- In 3 versions of height that can be pushed inside/outside
  WG 4291 = 44 mm 67 mm
  WG 4292 = 54 mm 77 mm
  WG 4293 = 64 mm 87 mm
- Integrated core holes for threaded bore holes Ø 3,1 mm
- With matching front plates on request, M4 threaded bore holes and countersunk screws
- Supplied as disassambled kit
- Special dimensions, machining and surfaces on request

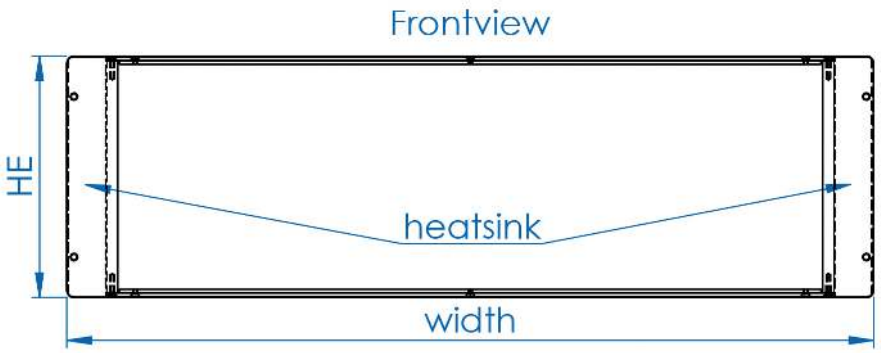


Aluminum 19" enclosure

Enclosure at 444mm width for 19” installations. Heat energy from enclosed electronics can be dissipated by heat sink sidings.
All surfaces of this enclosure are anodised in clear color by default.
As always, we offer a wide range of other customisation upon request, such as anodisation color in black or blue color and machining.
Specifications of the front panels you will find on the following pages.
The standard delivery is as an assembly kit. Handles for the front panels can be added upon request.

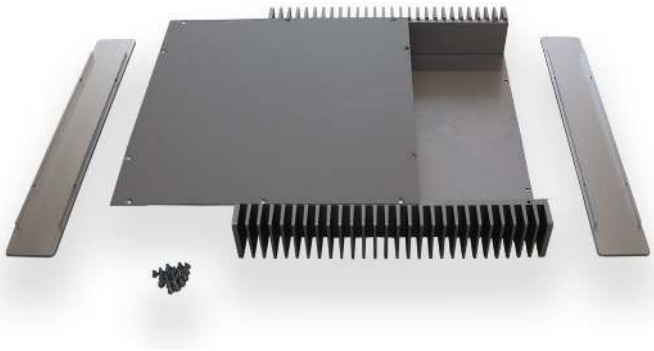
article	height unit	depth inside [mm]	inside widht [mm]	inside height [mm]
EG 1,0HE01NE	1 HE (43,6 mm)	247	388	39.4
EG 1,0HE02NE	1 HE (43,6 mm)	300	364	39.4
EG 1,0HE03NE	1 HE (43,6 mm)	494	388	39.4
EG 1,5HE01NE	1,5 HE (66,1 mm)	247	388	61.1
EG 1,5HE02NE	1,5 HE (66,1 mm)	300	364	61.1
EG 1,5HE03NE	1,5 HE (66,1 mm)	494	388	61.1
EG 2,0HE01NE	2 HE (88,4 mm)	247	388	84.2
EG 2,0HE02NE	2 HE (88,4 mm)	300	364	84.2
EG 2,0HE03NE	2 HE (88,4 mm)	494	388	84.2
EG 3,0HE01NE	3 HE (133 mm)	247	388	128.8
EG 3,0HE02NE	3 HE (133 mm)	300	364	128.8
EG 3,0HE03NE	3 HE (133 mm)	494	388	128.8





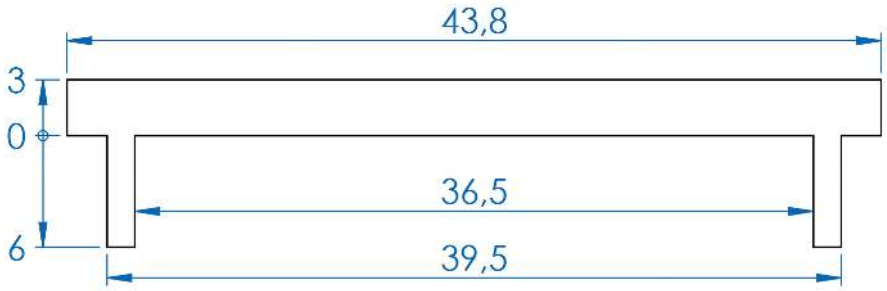
Aluminum desktop enclosure.

Heat energy from enclosed electronics can be dissipated by heat sink sidings.
All surfaces of this enclosure are anodised in clear color. As always, we offer a wide range of other customisation upon request, such as
anodisation color in black or blue color and machining.
Specifications on the front panels you will find on the following pages.
The standard delivery is as an assembly kit. Handles for the front panels can be added upon request.

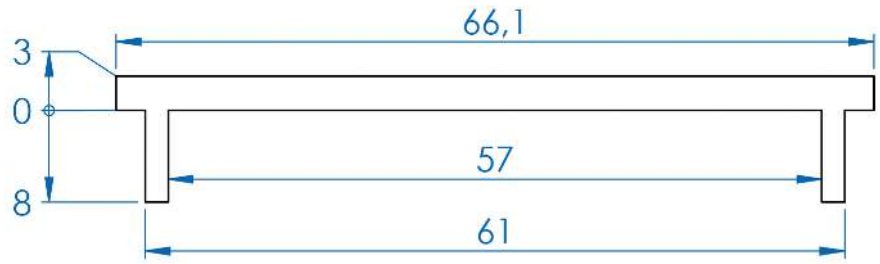


article	height unit	width [mm]	depth inside [mm]	inside widht [mm]	inside height [mm]
EG 1,0HE04NE	1 HE (43,6 mm)	444	247	388	39.4
EG 1,0HE05NE	1 HE (43,6 mm)	444	300	364	39.4
EG 1,0HE06NE	1 HE (43,6 mm)	444	494	388	39.4
EG 1,0HE07NE	1 HE (43,6 mm)	221.5	247	165.5	39.4
EG 1,0HE08NE	1 HE (43,6 mm)	221.5	494	165.5	39.4
EG 1,0HE09NE	1 HE (43,6 mm)	295.6	247	239.6	39.4
EG 1,0HE10NE	1 HE (43,6 mm)	295.6	300	215.6	39.4
EG 1,0HE11NE	1 HE (43,6 mm)	295.6	494	239.6	39.4
EG 1,5HE04NE	1,5 HE (66,1 mm)	444	247	388	61.1
EG 1,5HE05NE	1,5 HE (66,1 mm)	444	300	364	61.1
EG 1,5HE06NE	1,5 HE (66,1 mm)	444	494	388	61.1
EG 1,5HE07NE	1,5 HE (66,1 mm)	221.5	247	165.5	61.1
EG 1,5HE08NE	1,5 HE (66,1 mm)	221.5	494	165.5	61.1
EG 1,5HE09NE	1,5 HE (66,1 mm)	295.6	247	239.6	61.1
EG 1,5HE10NE	1,5 HE (66,1 mm)	295.6	300	215.6	61.1
EG 1,5HE11NE	1,5 HE (66,1 mm)	295.6	494	239.6	61.1
EG 2,0HE04NE	2 HE (88,4 mm)	444	247	388	84.2
EG 2,0HE05NE	2 HE (88,4 mm)	444	300	364	84.2
EG 2,0HE06NE	2 HE (88,4 mm)	444	494	388	84.2
EG 2,0HE07NE	2 HE (88,4 mm)	221.5	247	165.5	84.2
EG 2,0HE08NE	2 HE (88,4 mm)	221.5	494	165.5	84.2
EG 2,0HE09NE	2 HE (88,4 mm)	295.6	247	239.6	84.2
EG 2,0HE10NE	2 HE (88,4 mm)	295.6	300	215.6	84.2
EG 2,0HE11NE	2 HE (88,4 mm)	295.6	494	239.6	84.2
EG 3,0HE04NE	3 HE (133 mm)	444	247	388	128.8
EG 3,0HE05NE	3 HE (133 mm)	444	300	364	128.8
EG 3,0HE06NE	3 HE (133 mm)	444	494	388	128.8
EG 3,0HE07NE	3 HE (133 mm)	221.5	247	165.5	128.8
EG 3,0HE08NE	3 HE (133 mm)	221.5	494	165.5	128.8
EG 3,0HE09NE	3 HE (133 mm)	295.6	247	239.6	128.8
EG 3,0HE10NE	3 HE (133 mm)	295.6	300	215.6	128.8
EG 3,0HE11NE	3 HE (133 mm)	295.6	494	239.6	128.8

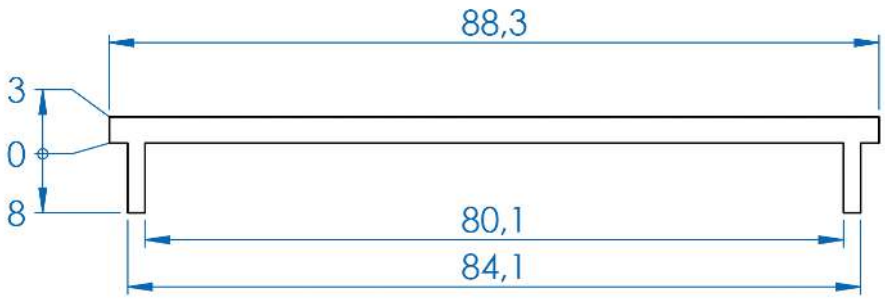
Front panel 1.0 HE



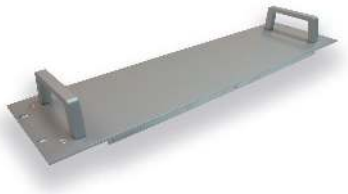
Front panel 1.5 HE

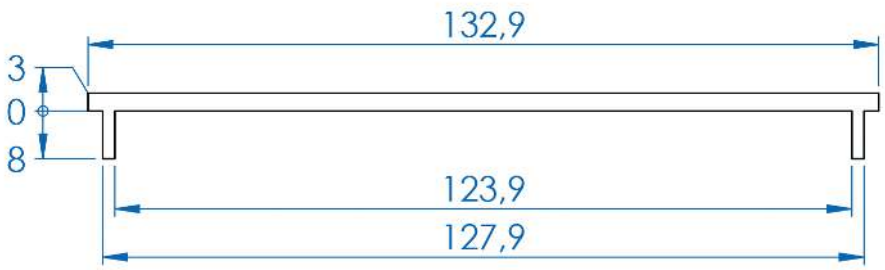


Front panel 2.0 HE

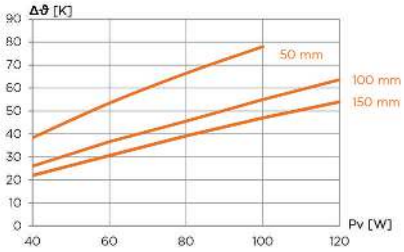


Front panel 3.0 HE (handles on request)



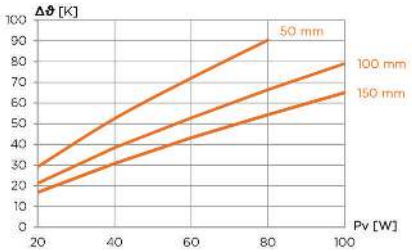


Heat sink for enclosure inside length of 300mm



Pv [W]	RthK [K/W]		
40	0,96	0,65	0,55
60	0,89	0,61	0,51
80	0,83	0,57	0,49
100	0,78	0,55	0,47
120		0,53	0,45
mm	50	100	150
kg/m	15,45		

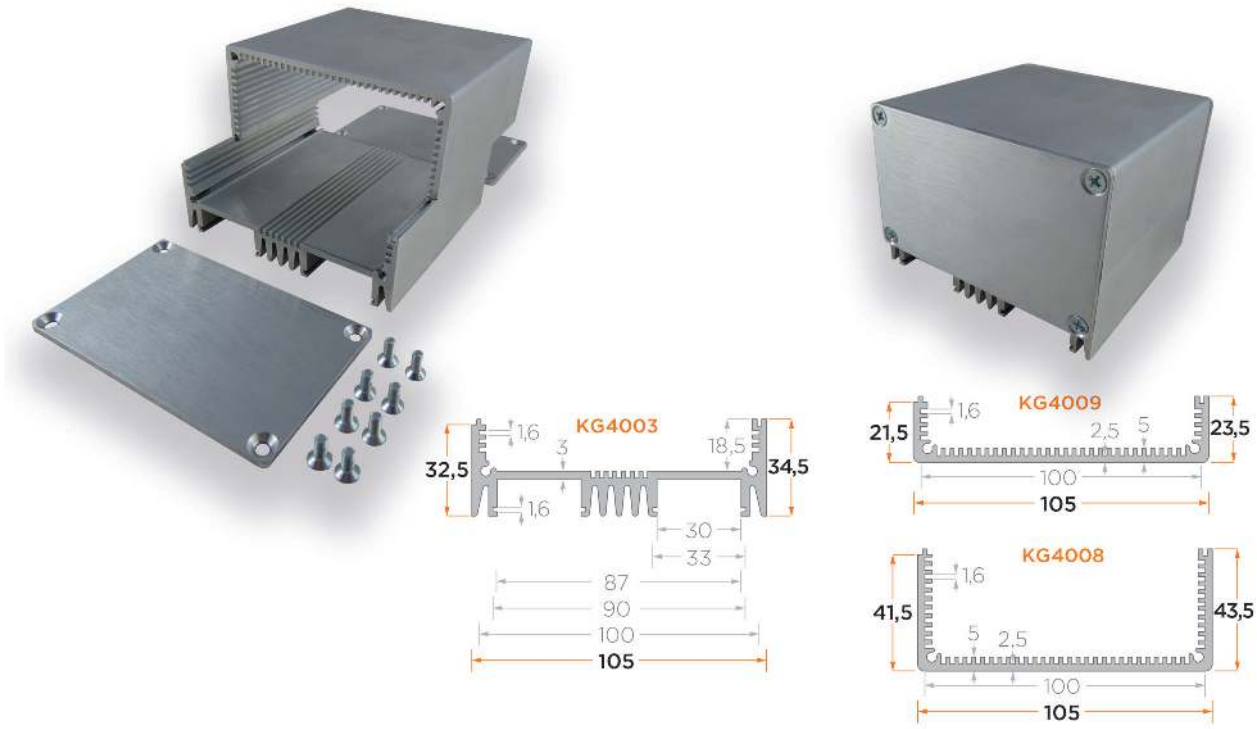
Heat sink for enclosure inside length of 247mm - 496mm



Pv [W]	RthK [K/W]		
20	1,46	1,06	0,84
40	1,31	0,96	0,77
60	1,20	0,88	0,72
80	1,13	0,83	0,68
100		0,79	0,65
mm	50	100	150
kg/m	6,12		

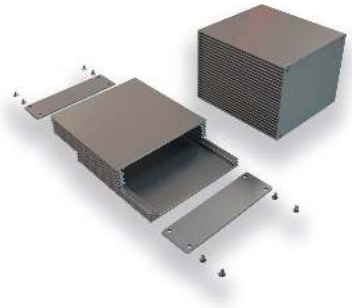
Casing Modules KG 4003 - KG 4008 - KG4009

- Robust profile casing made from AlMgSi 0.5 F 22 with integrated cooling fins on the base
- Inside with integrated guiding grooves
- Integrated core holes for threaded bore holes Ø 3,7 mm
- for holding non-standard components or Euro pcb boards
- Supplied as disassembled kit
- on request with compatible front plates and installation materials
- Special dimensions, machining and surfaces on request



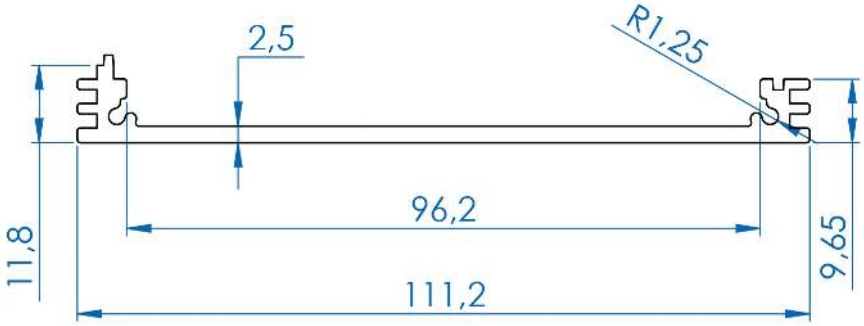
KG 5000

Standard casing for 100mm PCB Card.
Three extrusion profiles for individual configuration with matching front and back panel.
Delivery including screws.
Customised cuts and machining upon request. Customised prints possible.
We offer anodisation in clear, black and blue color.

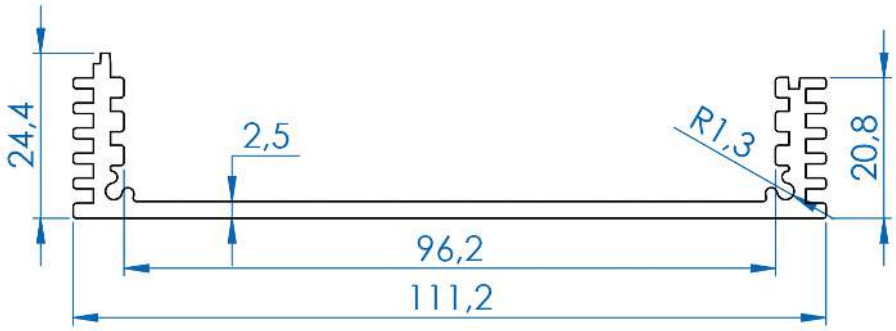


article	length [mm]	width [mm]	height [mm]	inside height [mm]	upper casing profile	lower casing profile
KG 5021-60-NE	60	112	21.9	16.4	KG 5001	KG 5001
KG 5021-120-NE	120	112	21.9	16.4	KG 5001	KG 5001
KG 5021-200-NE	200	112	21.9	16.4	KG 5001	KG 5001
KG 5033-60-NE	60	112	33	27.5	KG 5001	KG 5002
KG 5033-120-NE	120	112	33	27.5	KG 5001	KG 5002
KG 5033-200-NE	200	112	33	27.5	KG 5001	KG 5002
KG 5044-60-NE	60	112	44.1	38.6	KG 5002	KG 5002
KG 5044-120-NE	120	112	44.1	38.6	KG 5002	KG 5002
KG 5044-200-NE	200	112	44.1	38.6	KG 5002	KG 5002
KG 5055-60-NE	60	112	55.2	49.7	KG 5001	KG 5003
KG 5055-120-NE	120	112	55.2	49.7	KG 5001	KG 5003
KG 5055-200-NE	200	112	55.2	49.7	KG 5001	KG 5003
KG 5066-60-NE	60	112	66.3	60.8	KG 5002	KG 5003
KG 5066-120-NE	120	112	66.3	60.8	KG 5002	KG 5003
KG 5066-200-NE	200	112	66.3	60.8	KG 5002	KG 5003
KG 5088-60-NE	60	112	88.5	83	KG 5003	KG 5003
KG 5088-120-NE	120	112	88.5	83	KG 5003	KG 5003
KG 5088-200-NE	200	112	88.5	83	KG 5003	KG 5003

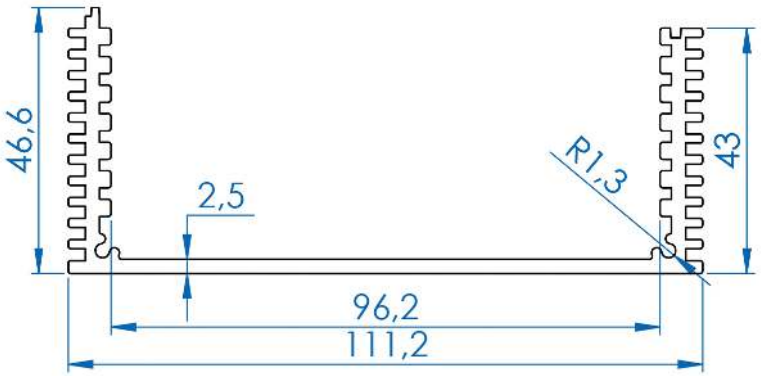
KG 5001



KG 5002

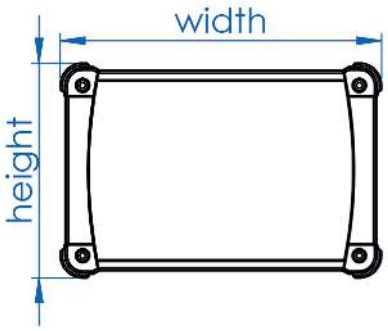


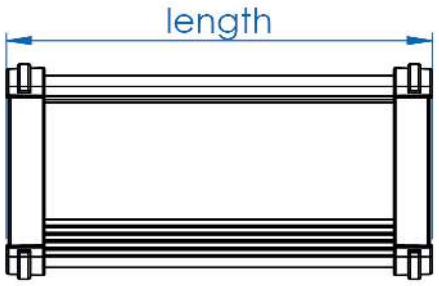
KG 5003



KG 5100

Aluminum casing with corner guard and protection class IP40.
Bottom and top casing as well a front and back panel from aluminum, anodised in clear, black or blue color.
Corner guard from polycarbonate UL94V-0 in colors black (SE), grey (GR), indigo (IN), navy (NA), lime (LI), yellow (GE), orange (OR) or red (RO).
Example for article naming: KG4101-60-SE-OR.
The standard delivery is as an assembly kit.

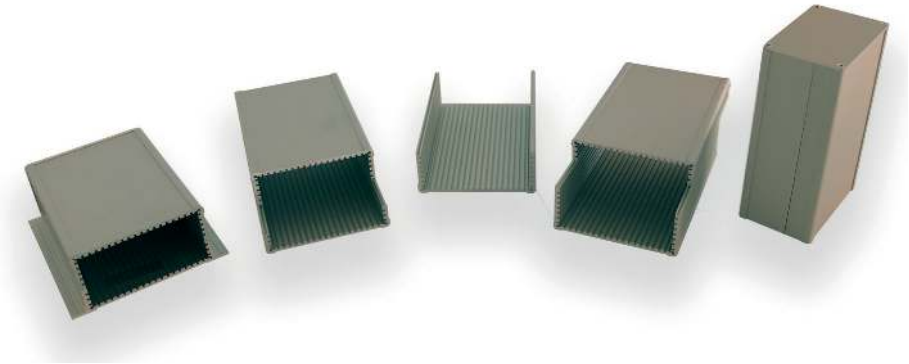




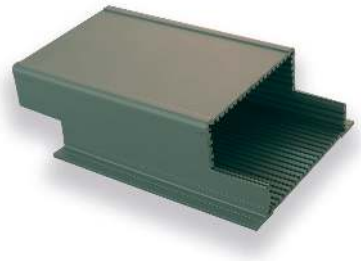
article	length [mm]	width [mm]	height [mm]
KG 5111-60-SE-OR	60	69	34
KG 5111-87-SE-OR	87	69	34
KG 5111-110-SE-OR	110	69	34
KG 5112-60-SE-OR	60	69	44
KG 5112-87-SE-OR	87	69	44
KG 5112-110-SE-OR	110	69	44
KG 5113-60-SE-OR	60	69	59
KG 5113-87-SE-OR	87	69	59
KG 5113-110-SE-OR	110	69	59
KG 5121-70-SE-OR	70	89	39
KG 5121-100-SE-OR	100	89	39
KG 5121-130-SE-OR	130	89	39
KG 5122-70-SE-OR	70	89	49
KG 5122-100-SE-OR	100	89	49
KG 5122-130-SE-OR	130	89	49
KG 5123-70-SE-OR	70	89	64
KG 5123-100-SE-OR	100	89	64
KG 5123-1130-SE-OR	130	89	64
KG 5131-90-SE-OR	90	116	41
KG 5131-130-SE-OR	130	116	41
KG 5131-176-SE-OR	176	116	41
KG 5132-90-SE-OR	90	116	56
KG 5132-130-SE-OR	130	116	56
KG 5132-176-SE-OR	176	116	56
KG 5133-90-SE-OR	90	116	71
KG 5133-130-SE-OR	130	116	71
KG 5133-176-SE-OR	176	116	71
KG 5141-110-SE-OR	110	151	46
KG 5141-150-SE-OR	150	151	46
KG 5141-200-SE-OR	200	151	46
KG 5142-110-SE-OR	110	151	61
KG 5142-150-SE-OR	150	151	61
KG 5142-200-SE-OR	200	151	61
KG 5143-110-SE-OR	110	151	81
KG 5143-150-SE-OR	150	151	81
KG 5143-200-SE-OR	200	151	81
KG 5144-110-SE-OR	110	151	101
KG 5144-150-SE-OR	150	151	101
KG 5144-200-SE-OR	200	151	101

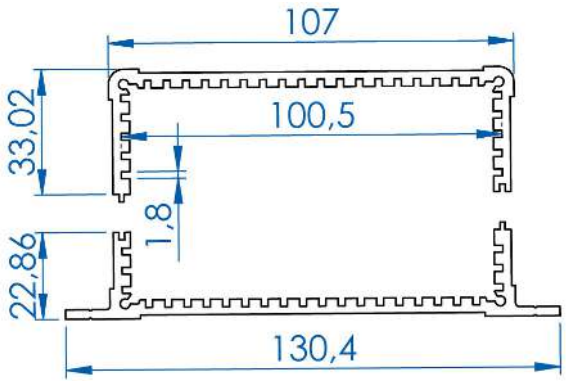
KG 5200

Standard casing for 100mm PCB Card. Height of the insert grooves for PCB card choosable in 5.08mm steps.
Four extrusion profiles for individual configuration with matching front and back panel.
Delivery including screws.
Customised cuts and machining upon request. Customised prints possible.
We offer anodisation in clear, black and blue color. We also offer plastic corner guards for shock protection and/or for design purposes in colors orange, night-blue, anthrazite, or green.



KG 5210

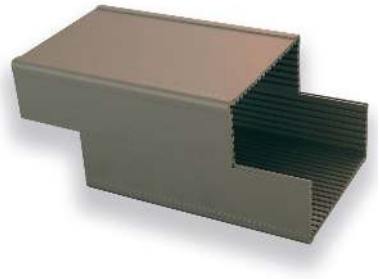


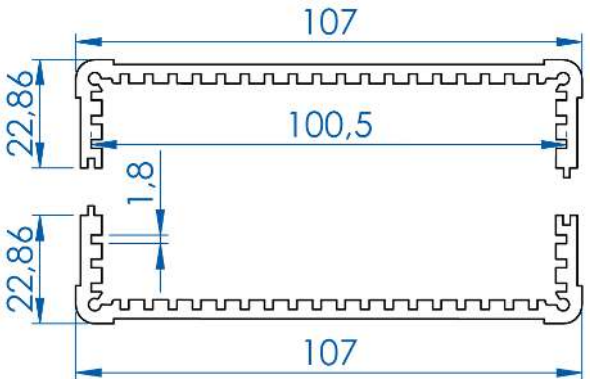


height: [mm]: **56** upper casing profile: **KG 5204** lower casing profile: **KG 5202**

article	length [mm]
KG 5210-100-NE	100
KG 5210-120-NE	120
KG 5210-160-NE	160
KG 5210-200-NE	200
KG 5210-220-NE	220
KG 5210-234-NE	234

KG 5220

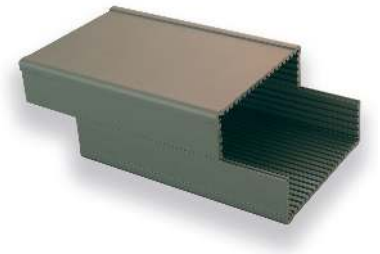


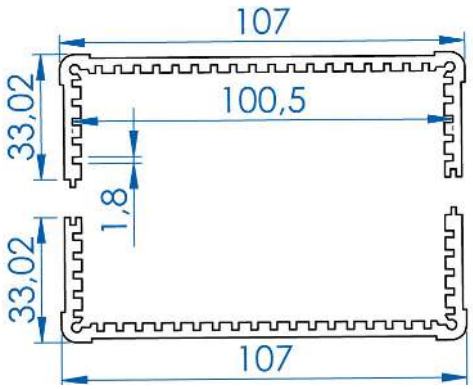


height: [mm]: **46** upper casing profile: **KG 5203** lower casing profile: **KG 5203**

article	length [mm]
KG 5220-100-NE	100
KG 5220-120-NE	120
KG 5220-160-NE	160
KG 5220-200-NE	200
KG 5220-220-NE	220
KG 5220-234-NE	234

KG 5230

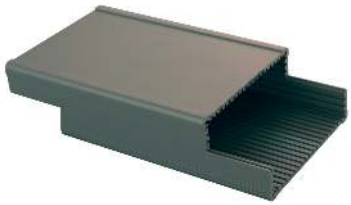


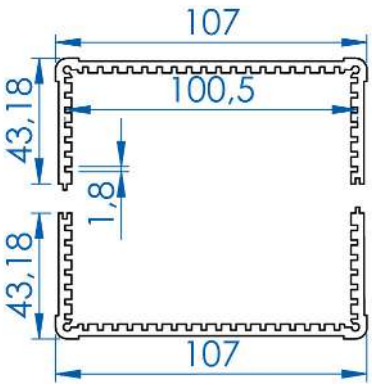


height: [mm]: **66** upper casing profile: **KG 5204** lower casing profile: **KG 5204**

article	length [mm]
KG 5230-100-NE	100
KG 5230-120-NE	120
KG 5230-160-NE	160
KG 5230-200-NE	200
KG 5230-220-NE	220
KG 5230-234-NE	234

KG 5240

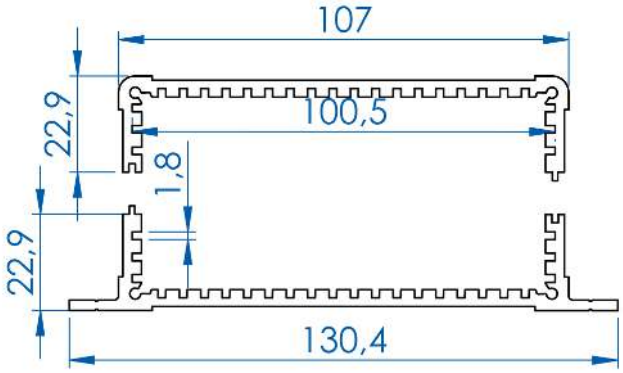




height: [mm]: **86** upper casing profile: **KG 5201** lower casing profile: **KG 5201**

article	length [mm]
KG 5240-100-NE	100
KG 5240-120-NE	120
KG 5240-160-NE	160
KG 5240-200-NE	200
KG 5240-220-NE	220
KG 5240-234-NE	234

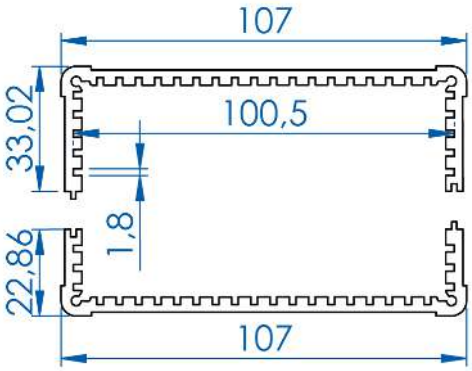
KG 5250



height: [mm]: **46** upper casing profile: **KG 5203** lower casing profile: **KG 5202**

article	length [mm]
KG 5250-100-NE	100
KG 5250-120-NE	120
KG 5250-160-NE	160
KG 5250-200-NE	200
KG 5250-220-NE	220
KG 5250-234-NE	234

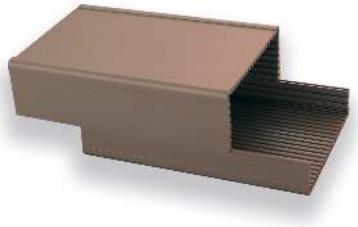
KG 5260

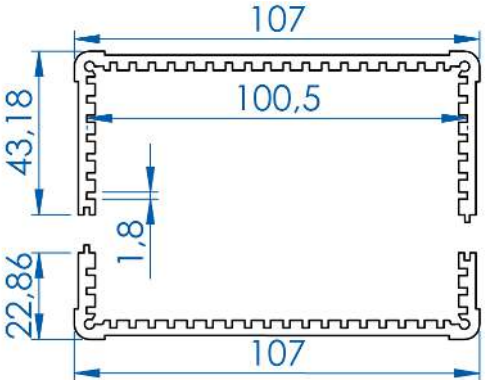


height: [mm]: **56** upper casing profile: **KG 5203** lower casing profile: **KG 5204**

article	length [mm]
KG 5260-100-NE	100
KG 5260-120-NE	120
KG 5260-160-NE	160
KG 5260-200-NE	200
KG 5260-220-NE	220
KG 5260-234-NE	234

KG 5270

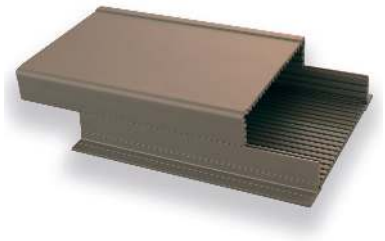


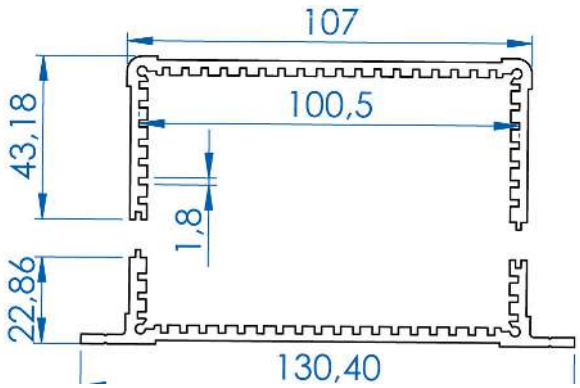


height: [mm]: **66** upper casing profile: **KG 5203** lower casing profile: **KG 5201**

article	length [mm]
KG 5270-100-NE	100
KG 5270-120-NE	120
KG 5270-160-NE	160
KG 5270-200-NE	200
KG 5270-220-NE	220
KG 5270-234-NE	234

KG 5280

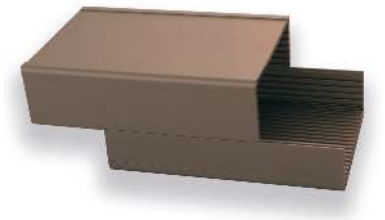


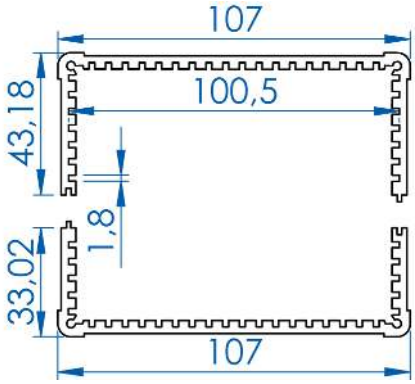


height: [mm]: **66** upper casing profile: **KG 5201** lower casing profile: **KG 5202**

article	length [mm]
KG 5280-100-NE	100
KG 5280-120-NE	120
KG 5280-160-NE	160
KG 5280-200-NE	200
KG 5280-220-NE	220
KG 5280-234-NE	234

KG 5290



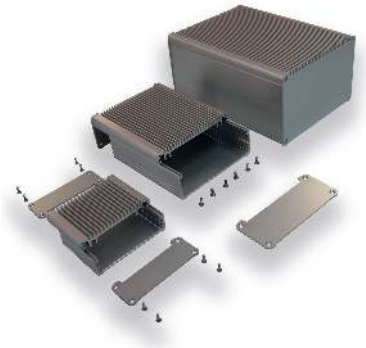


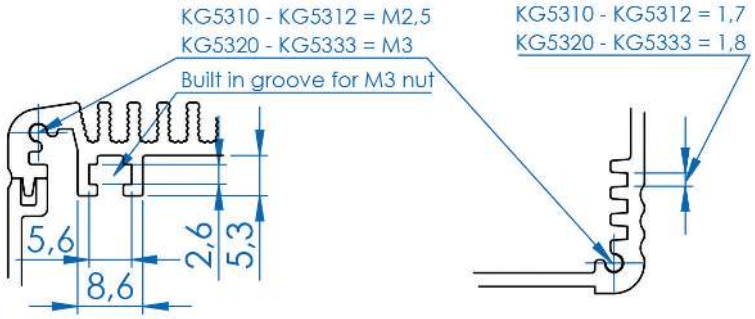
height: [mm]: **76** upper casing profile: **KG 5204** lower casing profile: **KG 5201**

article	length [mm]
KG 4290-100-NE	100
KG 4290-120-NE	120
KG 4290-160-NE	160
KG 4290-200-NE	200
KG 4290-220-NE	220
KG 4290-234-NE	234

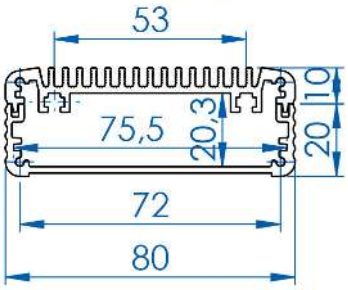
KG 5300

The KG5300 series features a top casing with fins to improve passive convection. This series is designed for power adapters, silent pc applications or amplifier components.
The top casing features grooves for M3 insertable nuts. Grooves on the case sidings can be used to insert PCB cards at a height that ensures a connection between electrical components and the casing top.
To further increase the outside surface of the finned casing top and thereby enhance the heat convection, the fins can be crossed by milled grooves in rectangular direction.
Protection class IP40.
Anodising colors black, clear or blue. M3 insert nuts available.
Delivery as assembly kit with front and back panel.

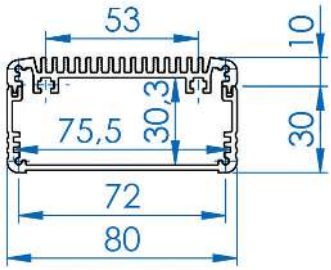




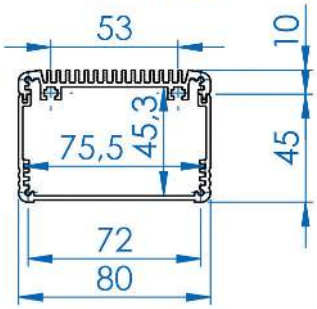
KG5310



KG5311

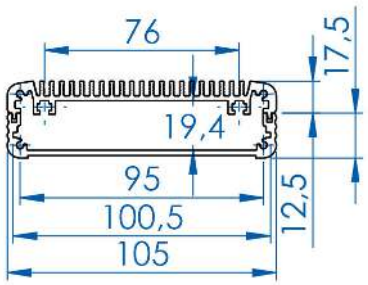


KG5312

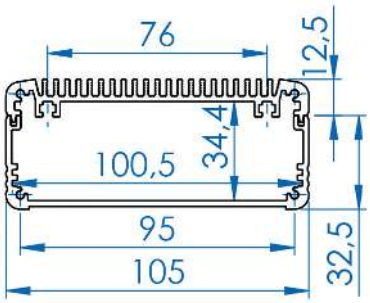


article	Rth [K/W]	length [mm]	width [mm]	height [mm]
KG 5310-60-SE	7.32	60	80.6	30.7
KG 5310-90-SE	5.65	90	80.6	30.7
KG 5310-120-SE	4.72	120	80.6	30.7
KG 5311-60-SE	7.32	60	80.6	40.7
KG 5311-90-SE	5.65	90	80.6	40.7
KG 5311-120-SE	4.72	120	80.6	40.7
KG 5312-60-SE	7.32	60	80.6	55.7
KG 5312-90-SE	5.65	90	80.6	55.7
KG 5312-120-SE	4.72	120	80.6	55.7

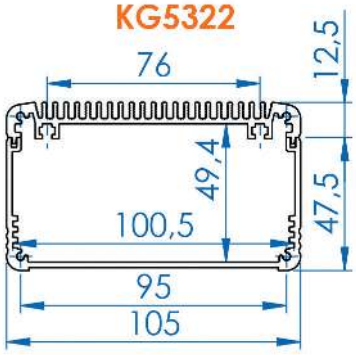
KG5320



KG5321

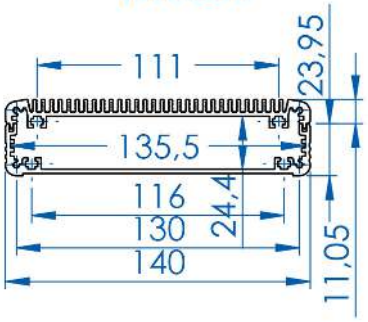


KG5322

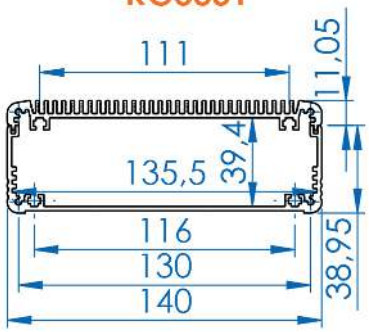


article	Rth [K/W]	length [mm]	width [mm]	height [mm]
KG 5320-78-SE	4.82	78	106	31.1
KG 5320-118-SE	3.72	118	106	31.1
KG 5320-164-SE	3.03	164	106	31.1
KG 5321-78-SE	4.82	78	106	46.1
KG 5321-118-SE	3.72	118	106	46.1
KG 5321-164-SE	3.03	164	106	46.1
KG 5322-118-SE	3.72	118	106	61.1
KG 5322-164-SE	3.03	164	106	61.1
KG 5322-78-SE	4.82	78	106	61.1

KG5330

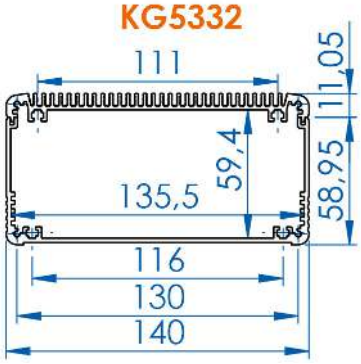


KG5331

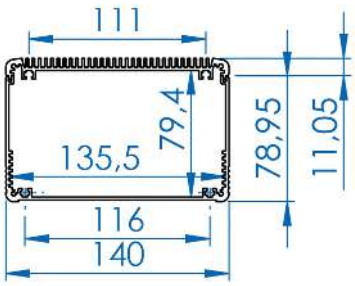


article	Rth [K/W]	length [mm]	width [mm]	height [mm]
KG 5330-97-SE	3.4	97	141	36.1
KG 5330-137-SE	2.75	137	141	36.1
KG 5330-187-SE	2.27	187	141	36.1
KG 5331-97-SE	3.4	97	141	51.1
KG 5331-137-SE	2.75	137	141	51.1
KG 5331-187-SE	2.27	187	141	51.1

KG5332



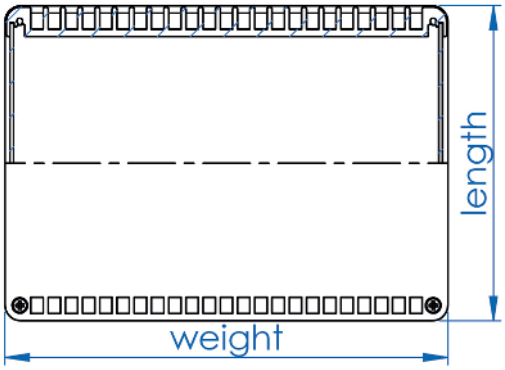
KG5333

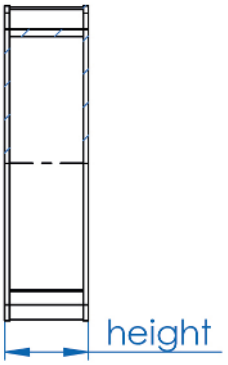


article	Rth [K/W]	length [mm]	width [mm]	height [mm]
KG 5332-97-SE	3.4	97	141	71.1
KG 5332-137-SE	2.75	137	141	71.1
KG 5332-187-SE	2.27	187	141	71.1
KG 5333-97-SE	3.4	97	141	91.1
KG 5333-137-SE	2.75	137	141	91.1
KG 5333-187-SE	2.27	187	141	91.1

FG 5100

Standard Design Casing FG 5100 with heat sink shaped siding.
Hole pattern on bottom and top sheet is designed to enhance natural airflow through the fins of the siding.
Anodising colors black, clear or blue.
Delivery as assembly kit.

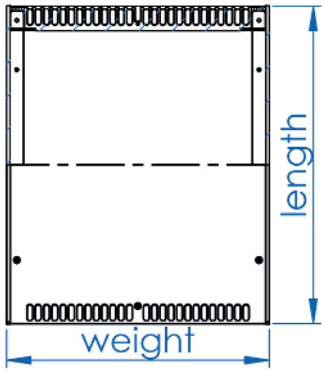


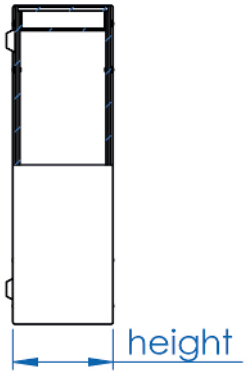


article	Weight [g]	length [mm]	width [mm]	height [mm]
FG 5131SE	183	89	130	20
FG 5132SE	255	89	130	40
FG 5133SE	289	130	130	30
FG 5134SE	370	130	130	50
FG 5135SE	414	180	130	40
FG 5136SE	503	180	130	60
FG 5181SE	411	128	180	30
FG 5182SE	535	128	180	50
FG 5183SE	578	174	180	40
FG 5184SE	719	174	180	60
FG 5185SE	772	228	180	50
FG 5186SE	928	228	180	70

FG 6000

Standard Design Casing FG 6000 with heat sink shaped siding.
Hole pattern on bottom and top sheet is designed to enhance natural airflow through the fins of the siding.
Protection class IP40. Anodising colors black, clear or blue.
Delivery as assembly kit.

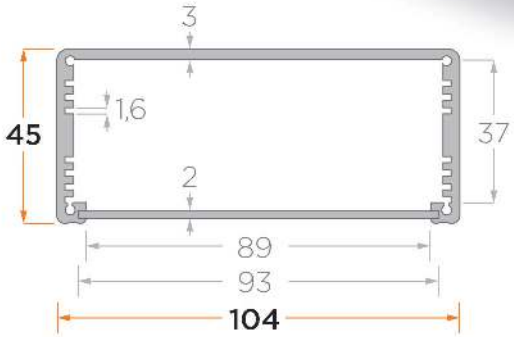




article	Weight [g]	Rthk [K/W]	length [mm]	width [mm]	height [mm]
FG 6101-44-NE	1,100	2.41	230	231	44
FG 6102-44-NE	1,600	1.89	230	330	44
FG 6103-44-NE	1,400	2.41	280	231	44
FG 6104-44-NE	1,900	1.89	280	330	44
FG 6105-44-NE	1,500	2.41	330	231	44
FG 6106-44-NE	2,200	1.89	330	330	44
FG 6107-44-NE	1,900	2.41	430	231	44
FG 6108-44-NE	2,600	1.89	430	330	44
FG 6201-70-NE	1,600	1.49	230	231	70
FG 6202-70-NE	2,200	1.36	230	330	70
FG 6203-70-NE	1,800	1.49	280	231	70
FG 6204-70-NE	2,500	1.36	280	330	70
FG 6205-70-NE	2,000	1.49	330	231	70
FG 6206-70-NE	2,800	1.36	330	330	70
FG 6207-70-NE	2,300	1.49	430	231	70
FG 6208-70-NE	3,200	1.36	430	330	70
FG 6301-88-NE	1,900	1.49	230	231	88
FG 6302-88-NE	2,600	1.17	230	330	88
FG 6303-88-NE	2,100	1.49	280	231	88
FG 6304-88-NE	2,800	1.17	280	330	88
FG 6305-88-NE	2,300	1.49	330	231	88
FG 6306-88-NE	3,100	1.17	330	330	88
FG 6307-88-NE	2,700	1.49	430	231	88
FG 6308-88-NE	3,600	1.17	430	330	88
FG 6501-132,5-NE	2,600	1.14	230	231	132.5
FG 6502-132,5-NE	3,400	0.89	230	330	132.5
FG 6503-132,5-NE	2,800	1.14	280	231	132.5
FG 6504-132,5-NE	3,800	0.89	280	330	132.5
FG 6505-132,5-NE	3,000	1.14	330	231	132.5
FG 6506-132,5-NE	4,100	0.89	330	330	132.5
FG 6507-132,5-NE	3,500	1.14	430	231	132.5
FG 6508-132,5-NE	4,700	0.89	430	330	132.5
FG 6701-177-NE	3,400	0.95	230	231	177
FG 6702-177-NE	4,500	0.74	230	330	177
FG 6703-177-NE	3,600	0.95	280	231	177
FG 6704-177-NE	4,800	0.74	280	330	177
FG 6705-177-NE	3,900	0.95	330	231	177
FG 6706-177-NE	5,200	0.74	330	330	177
FG 6707-177-NE	4,500	0.95	430	231	177
FG 6708-177-NE	5,800	0.74	430	330	177

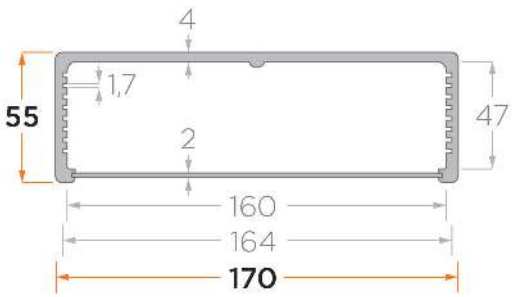
Shell Casing SG 3400

- Robust shell housing made from AlMgSi 0.5 F 22 with slide-in base (or cover)
- Side wall with integrated guiding grooves
- For holding non-standard components or Euro pcb boards
- With integrated core holes for threaded bore holes Ø 2,5 mm
- On request with M3 thread for compatible front plates and installation materials
- Supplied as disassembled kit
- Special dimensions, machining and surfaces on request



Shell Casing SG 3500

- Robust shell housing made from AlMgSi 0.5 F 22 with slide-in base (or cover)
- Side wall with integrated guiding grooves
- For holding non-standard components or Euro pcb boards
- On request with M3 thread for compatible front plates and installation materials
- Supplied as disassembled kit
- Special dimensions, machining and surfaces on request

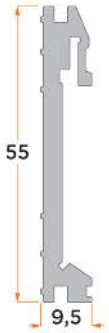


Alutronic offers complete sub-assemblies such as casings!

Rail Mounting SB35

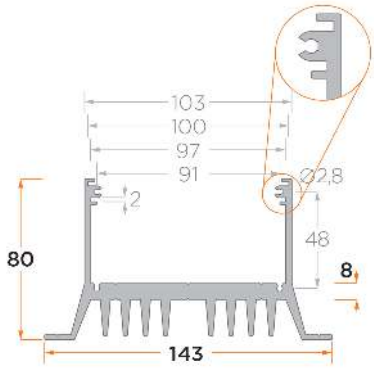
Universal clamp fixture compatible for all 35 mm DIN mounting rails

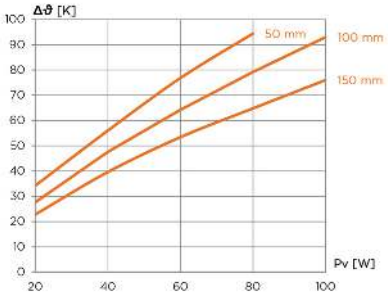
- Quick and easy installation of heat sinks and housings by snapping on the DIN mounting rail
- Secure hold by robust extruded profile with integrated wire-shaped spring made of stainless steel
- Any lengths as well as fixing bore holes as required by the customer (Length of fixing clamps up to 41 mm)



PR 250

- Housing heat sink with integrated cooling fins
- With standing or fixing feet on the side
- With slide-in grooves for cover plate or printed circuit boards (e.g Euro pcb boards)
- Integrated core holes for threaded bore holes for fixing front plates
- Special dimensions, machining and surfaces on request

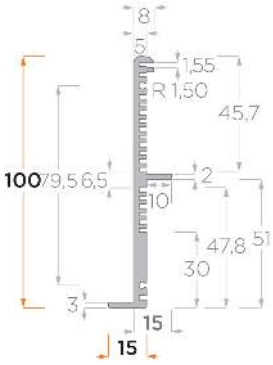




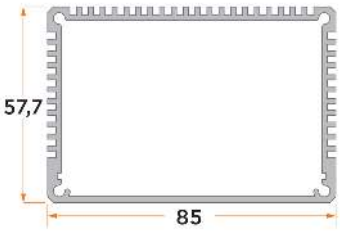
Pv [W]	RthK [K/W]		
20	1,71	1,38	1,14
40	1,4	1,19	0,99
60	1,28	1,07	0,89
80	1,18	0,99	0,81
100		0,93	0,76
mm	50	100	150
g	390	530	790

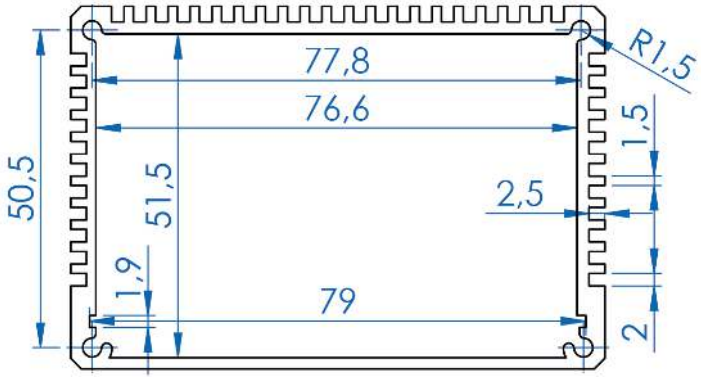
Universal Side Profile UP 285

Universal side profile made from aluminium e.g. for construction of a heat dissipating housing with cooling profiles. Especially with flatback profiles, cooling housings of any desired width and length can be constructed.
- Slide-in grooves for printed circuit boards of different thickness
- Screw channels for self-tapping screws for fixing front plates
- Particularly suitable for small quantities
- Fixing to the heat sink with the help of internal bridge (not visible) or on the side at any position of the side profile
- Special dimensions, machining and surfaces on request

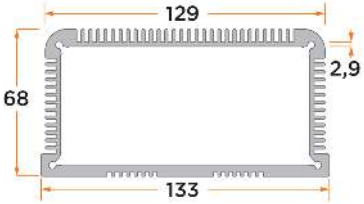


PR 500





PR 502



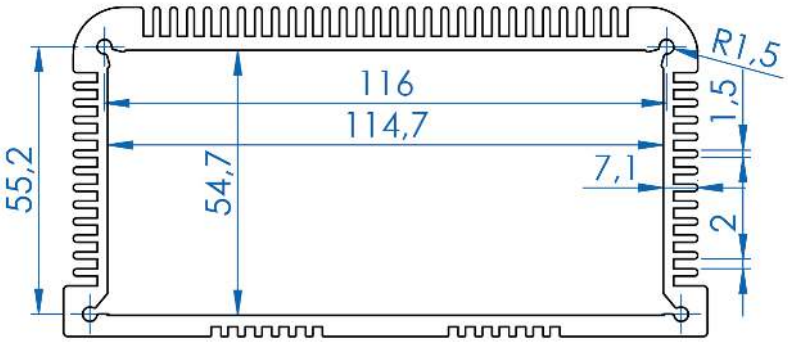


Table of Content

From a wide range of standard materials for improved heat conductivity and insulation of your semiconductor, choose the right connection between the heat-generating component and the heat sink.

For thermal interface materials you have a wide range of standard items and with Alutronic you always have the possibility and the competence for undertake customised adaptations.
Thus, e.g. foils can be cut to size on our cutting plotters, high-quality heat-conducting paste is filled in our filling system in containers of your choice, and ceramics are cut to size using laser equipment for your application.

If you are unable to find the solution you are looking for in this catalogue, please call us up.

We are constantly expanding our range of products, and you can also get the latest information by visiting our website at www.alutronic.de

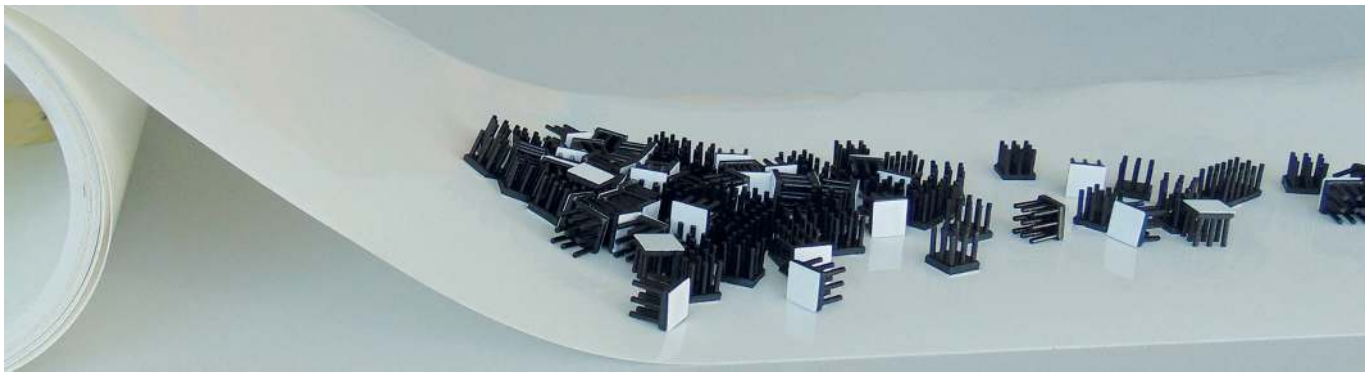
Insulating and heat-conducting materials are used for insulated assembly of components on heat sinks, and enable with their good heat-insulating material improved heat transfer from the component to the heat sink.
Filling up air bubbles is optimally ensured by using heat-conducting foil.
Compared to heat-conducting compounds, foils are easier in application. Foils ahhesive on one side or both sides assist in fixing the heat sources.

You can choose from different foils in standard cut sizes as well as specially cut foils with appropriate dimensions / hole patterns.
You can get them pre-fitted and assembled on your heat sinks.

Please refer to the following products for the technical specifications of our standard foils.

Basematerial SIO,13-DS (both side adhesive)

Both sides adhesive thermal pad for securing components to heat sinks
For matching heat sinks see the chapter
POWERBLOCS and **PCB MOUNTING - Adhesive heat sinks for single cooling**



Thermal Conductivity: [W/mK]: **0.8**
Tensile Strength: [MPa]: **6**
Thickness: [mm]: **0.13**
Expansion: [45% to Warp and Fill]: **70**
Dielectric Strength: [KV]: **3,000**
Temp. Resistant: [30 sec C°]: **200**
Temperature Range: [°C]: **-30 bis 120**
Lap Shear at Room Temp.: [psi / MPa]: **0.7**
Reinforcement Carrier: **fiberglas**
Thermal Expansion: [ppm]: **325**
Flame Rating:

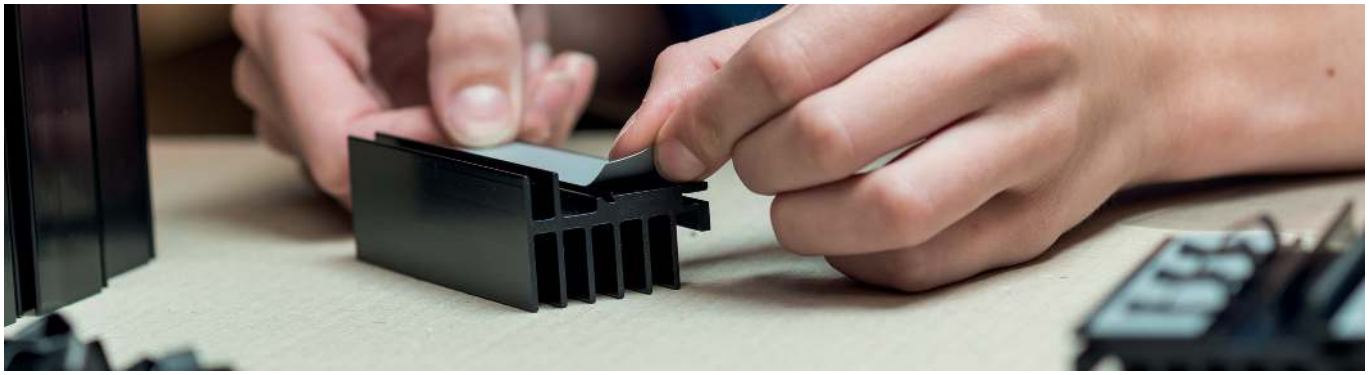
Sheet Material SI0,18 (not adhesive) and SI 0,18-S (one-side adhesive)

Thermal Conductivity: [W/mK]: **0.9**
Reinforcement Carrier: **fiberglas**
Thickness: [mm]: **0.18**
Dielectric constant: [at 1 MHz]: **5.5**

Dielectric Strength: [KV]: **3,500**
Fracture strength: [kN/m]: **5**
Temperature Range: [°C]: **-60 bis 180**
Expansion: [45% to Warp and Fill]: **54**

Material: **silicone with fiberglass**
Tensile Strength: [MPa]: **20**
Flame Rating: **V-O**
Hardness: [ShoreA (Test ASTM D2240)]: **85**

Sheet Material SI0,23 (not adhesive) and SI 0,23-S (one-side adhesive)



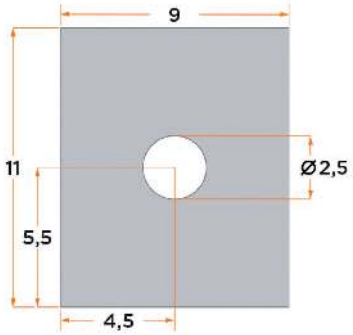
Thermal Conductivity: [W/mK]: **0.9**
Reinforcement Carrier: **fiberglas**
Thickness: [mm]: **0.23**
Dielectric constant: [at 1 MHz]: **5.5**

Dielectric Strength: [KV]: **4,500**
Fracture strength: [kN/m]: **5**
Temperature Range: [°C]: **-60 bis 180**
Expansion: [45% to Warp and Fill]: **54**

Material: **silicone with fiberglass**
Tensile Strength: [MPa]: **20**
Flame Rating: **V-O**
Hardness: [ShoreA (Test ASTM D2240)]: **85**

The following pages contain our selection of standard shapes, manufactured from the materials
SI 0.18 (non-adhesive) / SI 0.18-S (adhesive on one side)
SI 0.23 (non-adhesive) / SI 0.23-S (adhesive on one side)
for prevalent semiconductors as well as sheet material.
If the shape that you need is not included, application-specific drawing parts can be supplied on short notice and for small quantities.

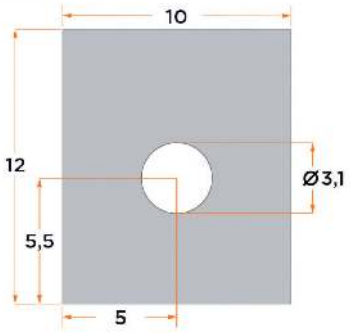
Sorted by shape of the semiconductor casing



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7001	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7001-S	SI0.18-S*			
SI 7011	SI0,23	0,23mm		4500 (VAC)
SI 7011-S	SI0,23-S*			

* one side adhesive

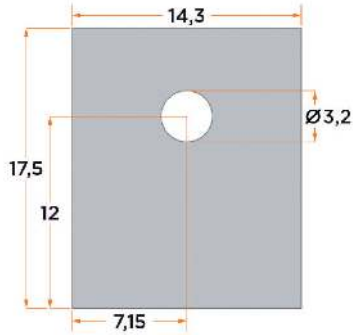
For Casing: **TO 220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7002	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7002-S	SI0,18-S*			
SI 7012	SI0,23	0,23mm		4500 (VAC)
SI 7012-S	SI0,23-S*			

* one side adhesive

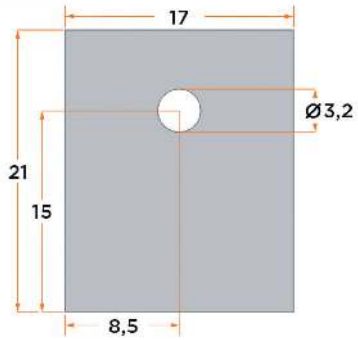
For Casing: **TO220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 488	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 488-S	SI0,18-S*			
SI 489	SI0,23	0,23mm		4500 (VAC)
SI 489-S	SI0,23-S*			

* one side adhesive

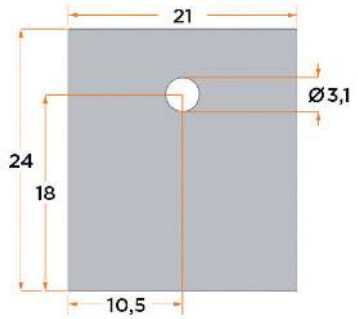
For Casing: **TO220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7003	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7003-S	SI0,18-S*			
SI 7013	SI0,23	0,23mm		4500 (VAC)
SI 7013-S	SI0,23-S*			

* one side adhesive

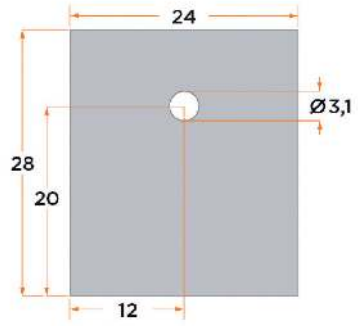
For Casing: **TO 220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7004	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7004-S	SI0,18-S*			
SI 7014	SI0,23	0,23mm		4500 (VAC)
SI 7014-S	SI0,23-S*			

* one side adhesive

For Casing: **TO 220**



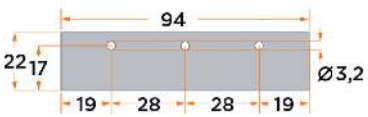
Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7005	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7005-S	SI0,18-S*			
SI 7015	SI0,23	0,23mm		4500 (VAC)
SI 7015-S	SI0,23-S*			

* one side adhesive

For Casing: **TO 220**

for multiple mounting

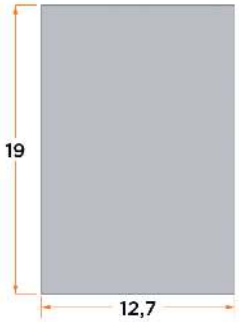
You can find compatible profile heat sinks in the section on heat sinks, PCB installation, multiple cooling



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7009	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7009-S	SI0,18-S*			
SI 7019	SI0,23	0,23mm		4500 (VAC)
SI 7019-S	SI0,23-S*			

* one side adhesive

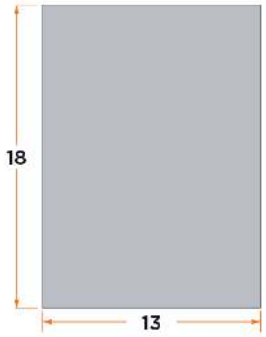
For Casing: **TO 220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 487	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 487-S	SI0,18-S*			
SI 498	SI0,23	0,23mm		4500 (VAC)
SI 498-S	SI0,23-S*			

* one side adhesive

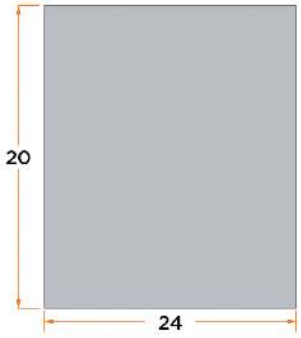
For Casing: **TO 220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7007	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7007-S	SI0,18-S*			
SI 7017	SI0,23	0,23mm		4500 (VAC)
SI 7017-S	SI0,23-S*			

* one side adhesive

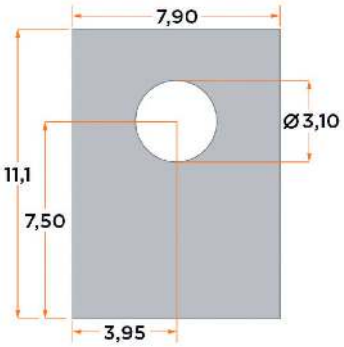
For Casing: **TO 220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7006	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7006-S	SI0,18-S*			
SI 7016	SI0,23	0,23mm		4500 (VAC)
SI 7016-S	SI0,23-S*			

* one side adhesive

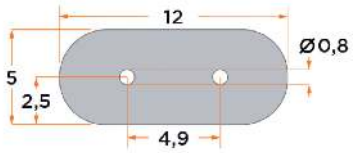
For Casing: **TO 220**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 485	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 485-S	SI0,18-S*			
SI 483	SI0,23	0,23mm		4500 (VAC)
SI 483-S	SI0,23-S*			

* one side adhesive

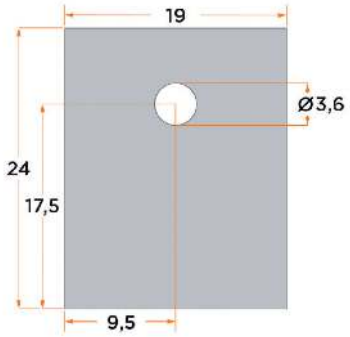
For Casing: **SOT 32**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 497	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 497-S	SI0,18-S*			
SI 499	SI0,23	0,23mm		4500 (VAC)
SI 499-S	SI0,23-S*			

* one side adhesive

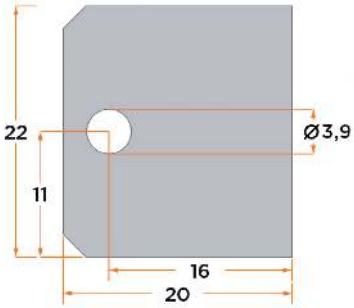
For Casing: **Quartz**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 490	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 490-S	SI0,18-S*			
SI 495	SI0,23	0,23mm		4500 (VAC)
SI 495-S	SI0,23-S*			

* one side adhesive

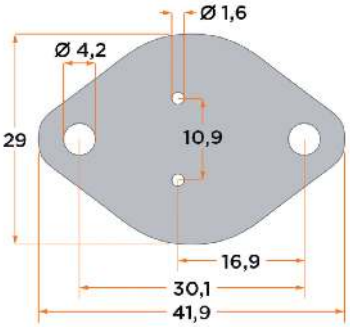
For Casing: **TOP 3 (TO 218)**



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 492	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 492-S	SI0,18-S*			
SI 493	SI0,23	0,23mm		4500 (VAC)
SI 493-S	SI0,23-S*			

* one side adhesive

For Casing: **Multiwatt**



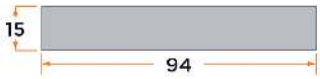
Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 480	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 480-S	SI0,18-S*			
SI 481	SI0,23	0,23mm		4500 (VAC)
SI 481 -S	SI0,23-S*			

* one side adhesive

For Casing: **TO 3**

for multiple mounting

You can find compatible profile heat sinks in the section on Heat Sink PCB mounting / For Multiple Devices



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 7008	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 7008-S	SI0,18-S*			
SI 7018	SI0,23	0,23mm		4500 (VAC)
SI 7018-S	SI0,23-S*			

* one side adhesive

For Casing: **TO 220**

---

for multiple mounting

You can find compatible profile heat sinks in the section on Heat Sink PCB mounting / For Multiple Devices

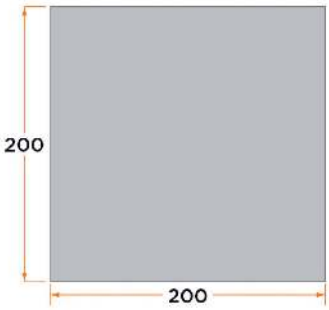
Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 6018	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 6018-S	SI0,18-S*			
SI 6023	SI0,23	0,23mm		4500 (VAC)
SI 6023-S	SI0,23-S*			

* one side adhesive

For Casing: **TO 220**

Sheet material

for self cutting



Type	Material	Thick-ness	Thermal Conductivity	Dielectric Strength
SI 4018	SI0,18	0,18mm	0,9 W/mK	3500 (VAC)
SI 4018-S	SI0,18-S*			
SI 4023	SI0,23	0,23mm		4500 (VAC)
SI 4023-S	SI0,23-S*			

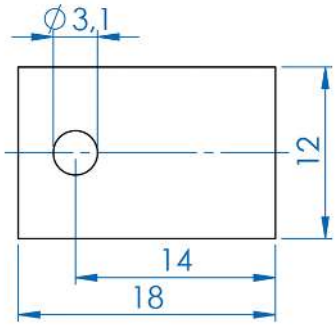
* one side adhesive

Mica panels are used in conjunction with insulating bushings for insulated assembly of semiconductors, e.g. on heat sinks.
To avoid poorly conducting air bubbles, it is recommended to use heat-conducting paste or heat-conducting foils.

General technical values:

Colour:	colourless, transparent
Thickness:	0.05 mm
Thickness tolerance:	+ 0.01 / - 0.02 mm
Resistance to heat:	+ 550°C
Dielectric strength:	approx. 2.5 KV

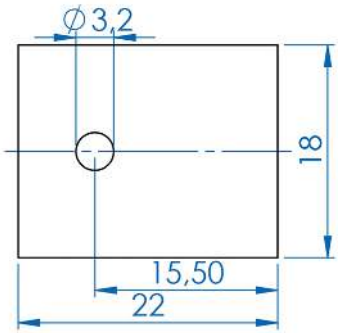
GL 530



For Casing: **TO 220**

Rth: [K/W]: **1.25**

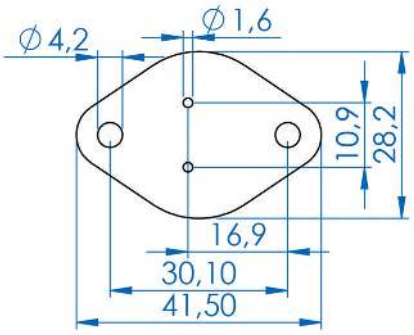
GL 535/N



For Casing: **TOP 3 (TO218)**

Rth: [K/W]: **0.8**

GL 510



For Casing: **TO 3**

Rth: [K/W]: **0.3**

Alutronic runs on 100% CO^2 neutral hydropower!

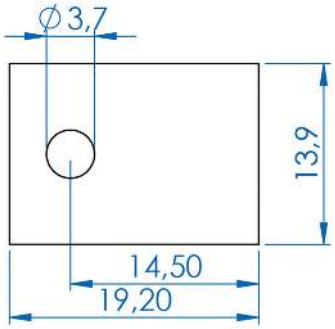
Aluminium oxide slices are used for insulated assembly of semiconductors for high voltage ranges.
Despite the high dielectric strength, good heat transfer, from the semiconductor to the heat sink is available.

General values:

Colour:	white
Dielectric strength:	approx. 10 KV / mm
Dielectric loss factor at 1 MHz:	10^4
Dielectric constant at 1 MHz:	9.1
Specific resistance:	10^4 Ohm x cm
Density:	3.9 gm ^{3} purity 96 %
R_{th} (TO3):	approx. 0.5 K / W

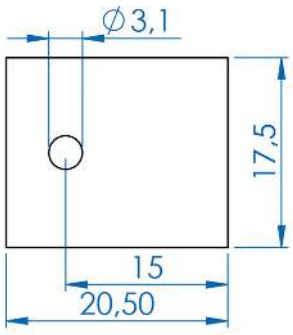
The following pages contain standard sections for prevalent semiconductor shapes.
We are be pleased to cut customised aluminium oxide slices for you based on your drawing.

AO 475



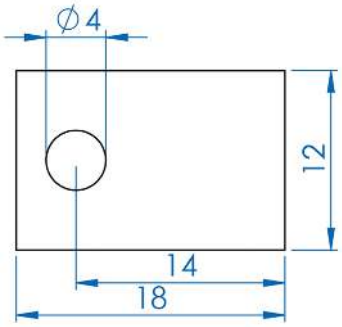
For Casing: **TO 220** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **1.6**

AO 472



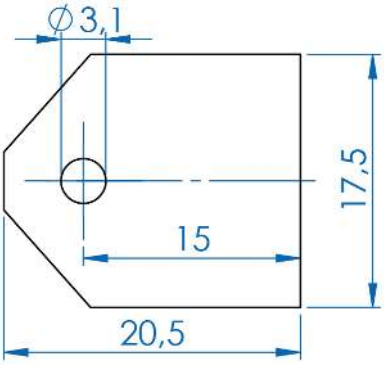
For Casing: **TO 218, TOP 3** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **1.6**

AO 479



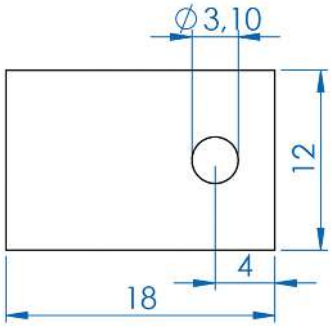
For Casing: **TO 220** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **1.5**

AO 471



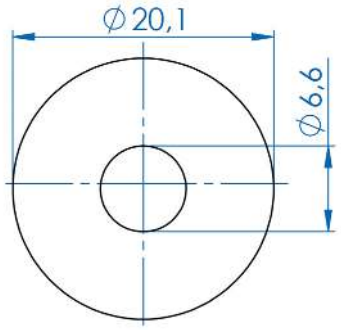
For Casing: **TO 218, TOP 3** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **1.5**

AO 474



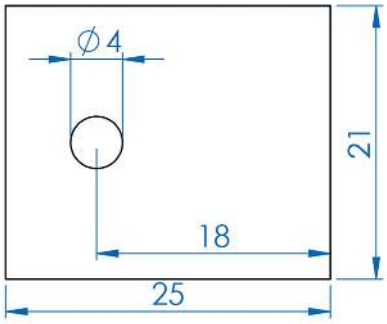
For Casing: **TO 220** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **1.5**

AO 478



For Casing: **DO 5 (Diode)** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **1.6**

AO 480



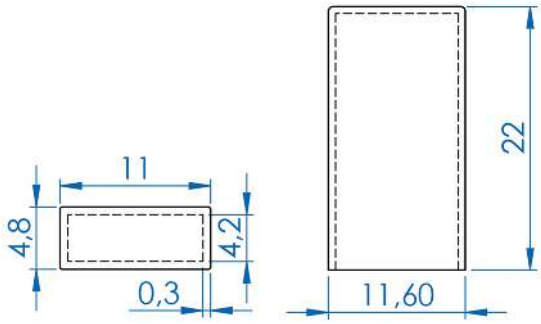
For Casing: **TO 218, TOP 3** Thermal Conductivity: [W/mK]: **25** Thickness: [mm]: **3**

Insulating caps and insulating hoses made from high quality silicone rubber simplify the insulated structure of semiconductors on heat sinks, especially with clip assembly.

General technical values:

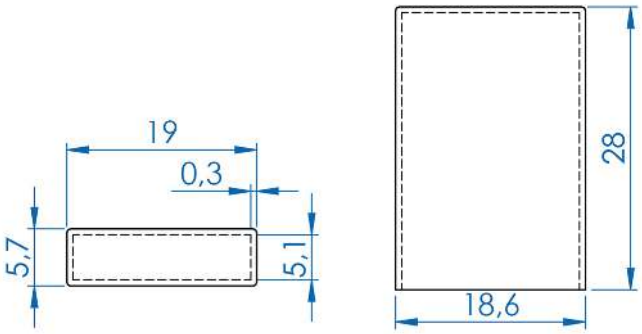
Colour:	Grey
Dielectric strength:	10 KV
Dielectric constant at 10^4 MHz:	4.4 KV
Temperature range:	- 60/+180°C
Hardness:	75 Shore A
Expansion	100 %
R_{th}:	1.48 K/W

IK 550



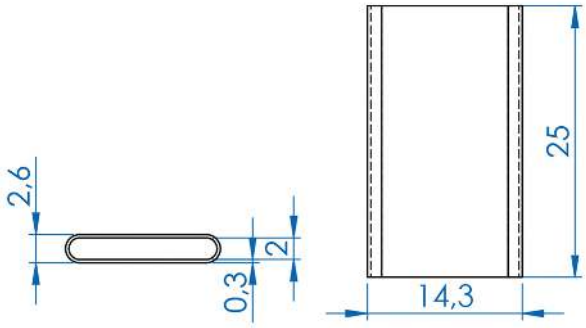
For Casing: **TO 220**

IK 553



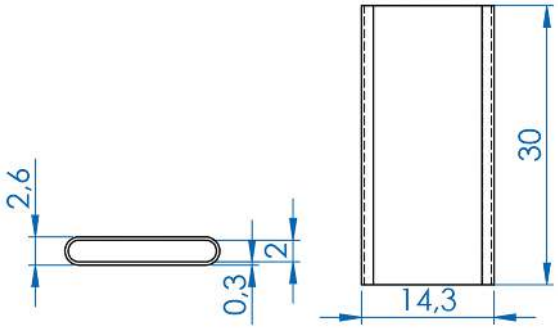
For Casing: **TO 218, TOP 3**

IL 555/25



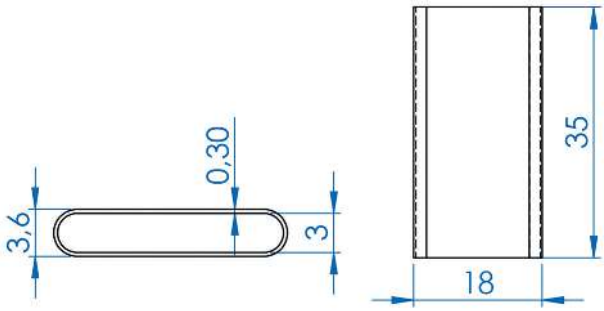
For Casing: **TO 220**

IL 555/30



For Casing: **TO 220**

IL 557/35



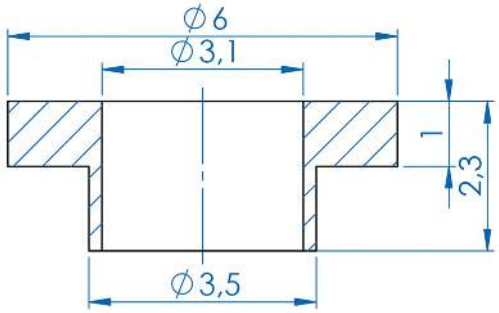
For Casing: **TO 218, TOP 3**

Insulating bushes are used in conjunction with insulating washers made of silicone or mica for insulated screw assembly of semiconductors, e.g. on heat sinks.

Material:Makrolon(Heat resistance 130 C°)
SR25 (Heat resistance 200 C°)

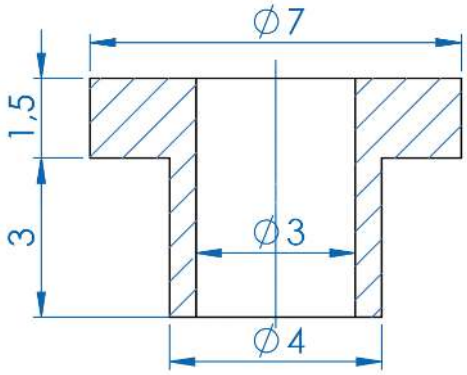
flammability according to UL 94 VO

IS 560 + IS 561



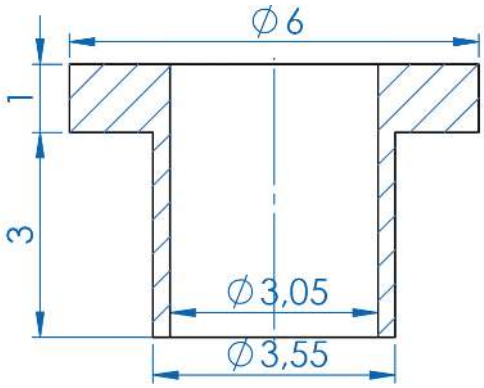
article	For Casing	Dielectric Strength [KV]	Material	Colour
IS 560	TO220, TO218 (TOP3), Multiwatt	30	Macrolon	White
IS 561	TO220, TO218 (TOP3), Multiwatt	16	SR25	Black/Grey

IS 560 + IS 561



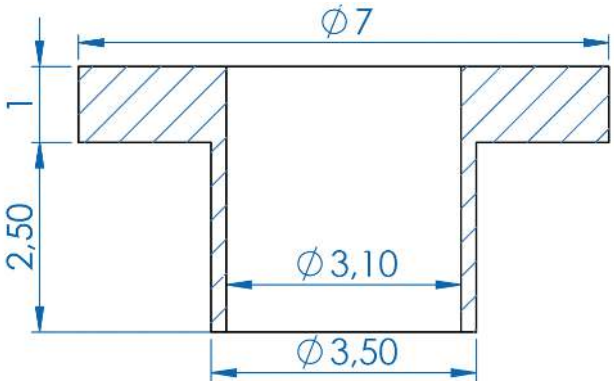
article	Dielectric Strength [KV]	Material	Colour
IS 574	30	Macrolon	
IS 576	16	SR25	

IS 570



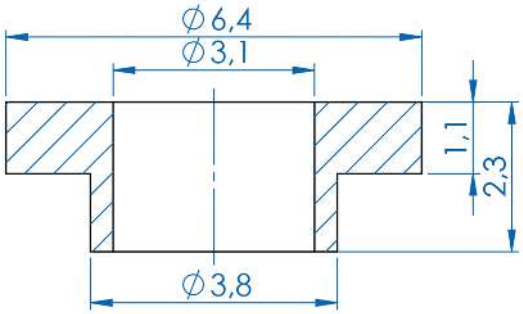
For Casing: **TO220, TO218 (TOP3), Multiwatt** Dielectric Strength: [KV]: **16** Material: **SR25**

IS 570



For Casing: **TO220, TO218 (TOP3), Multiwatt** Dielectric Strength: [KV]: **16** Material: **SR25**

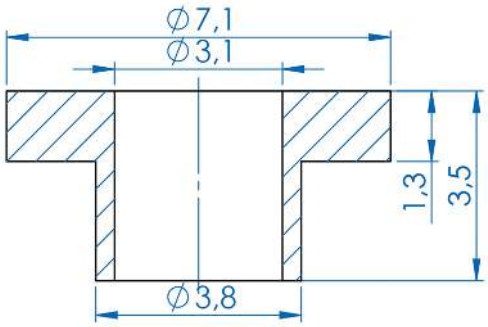
IS 565



For Casing: **TO220, TO218 (TOP3), Multiwatt**

article	Dielectric Strength [KV]	Material	Colour
IS 565	30	Macrolon	
IS 565	16	SR25	

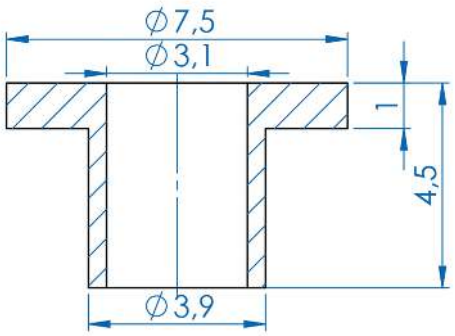
IS 570



For Casing: **TO220, TO218 (TOP3), Multiwatt**

article	Dielectric Strength [KV]	Material	Colour
IS 570	30	Macrolon	
IS 570	16	SR25	

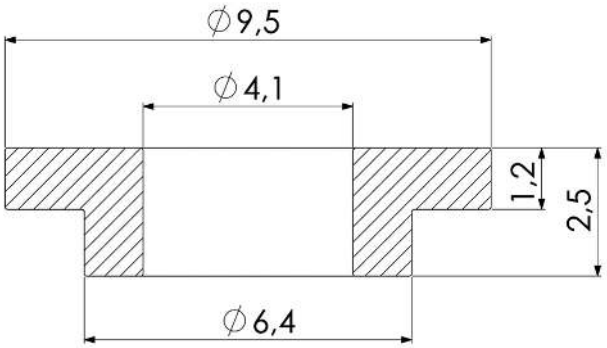
IS 580



For Casing: **TO 3**

article	Dielectric Strength [KV]	Material	Colour
IS 580	30	Macrolon	
IS 580	16	SR25	

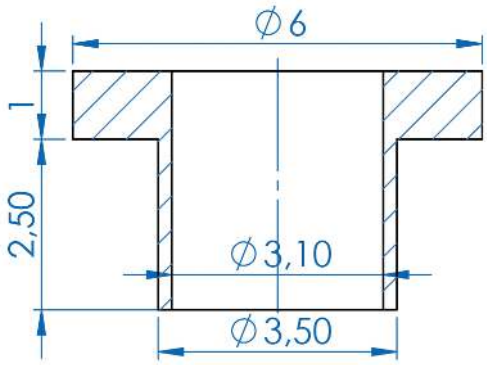
IS 585



For Casing: **Dioden**

article	Dielectric Strength [KV]	Material	Colour
IS 585	30	Macrolon	
IS 585	16	SR25	

IS 570



For Casing: **TO220, TO218 (TOP3), Multiwatt**

Dielectric Strength: [KV]: **16**

Material: **SR25**

PA 700 - with silicon / PA 701 - siliconfree

Thermally conducting compounds fill up air gaps caused by surface roughness and ensures the best possible thermal transfer of semiconductors heat sinks.
For an area of 100x100 mm (non-machined extruded profile) approx. 0.4 gm of thermally conducting paste is needed, and this should be applied as a thin film.

PA701 is used primarily when systems must be kept absolutely free from silicone.

PA 800 - siliconfree

(Arctic Silver)
PA 800 is a high-performance heat-conducting compound and is suitable for all applications.
With its three unique phases and sizes of the silver particles (99.9% pure silver) a new form of the particle-to-particle contact and thermal conductivity is achieved.
The poly-synthetic base material made of zinc oxide, aluminium oxide and boron nitride, in the process, improve the performance and the long-term stability.
The ideal pasty consistency of the PA800 heat-conducting paste ensures ease of handling and better distribution on the medium.
The paste is not electrically conducting and free from silicones.

		PA 700	PA 701	PA 800
Thermal conductivity	[W/mK]	0,8	0,5	9,0
Service Temperature	[°C]	-40 to +180	-40 to +150	-50 to +180
		contain silicon	silicone free	silicone free
Packaging	Syringe	10g / 20g / 50g / 100g	10g / 20g / 50g / 100g	3,5g / 12g
	Canister	250g / 500g	250g / 500g	

Table of Content

From more than 300 different standard types of fixing for assembly of the heat sink and for assembly of your components, you can find economical solutions here.

Spacer bolts, clips and heat-conducting adhesives for fixing semiconductors offer you secure and simple means of fixing assemblies.

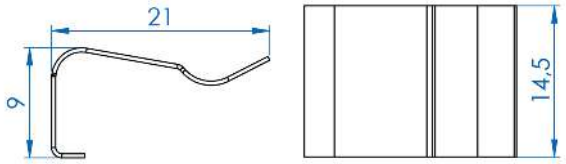
If you are unable to find the solution you are looking for in this catalogue, please call us up.

We are constantly expanding our range of products, and you can also get the latest information by visiting our website at www.alutronic.de

Alutronic mounting clips are particularly beneficial if you are fixing electronic components on heat sinks in constrained installation situations. Another significant benefit is the shorter installation time compared to screw assembly and the uniform, central contact pressure of the semiconductor on the heat sink. This ensures optimal heat transfer as a result of which local temperature differences can be reduced in the semiconductor. Unequal distribution of force by the centrally applied force of the screw connection is avoided, as a result of which stresses in the semiconductor housing are minimised.

MC 797

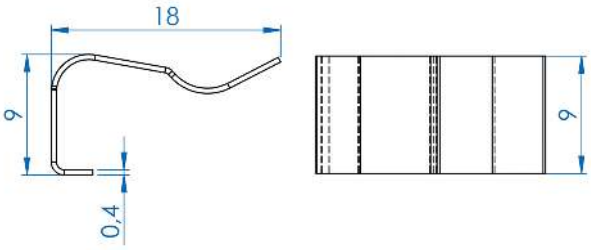
Fits to all Alutronic heat sink with clip groove.



For Casing: **TO 218, TOP 3** Material: **Spring steel** Surface: **burnished**

MC 725

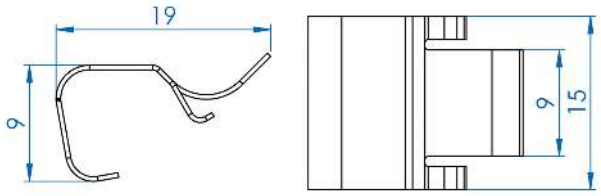
Fits to all Alutronic heat sink with clip groove.



For Casing: **TO 220** Material: **Spring steel** Surface: **burnished**

MC 726

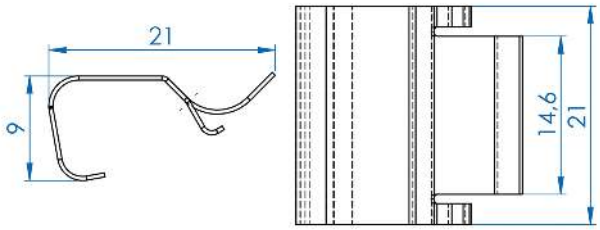
Fits to all Alutronic heat sink with clip groove.



For Casing: **TO 220** Material: **Spring steel** Surface: **burnished**

MC 773

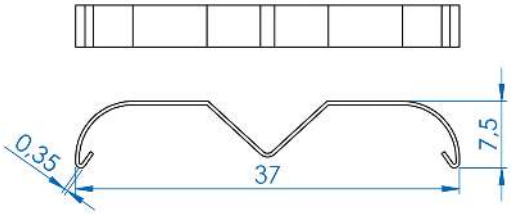
Fits to all Alutronic heat sink with clip groove.



For Casing: **TO 218, TOP 3** Material: **Spring steel** Surface: **burnished**

MC 28

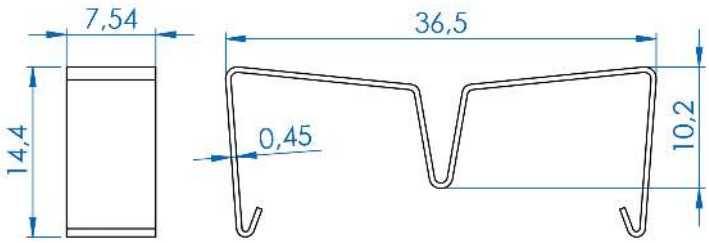
Mounting Clip for heat sink PR 28



Material: **Spring steel** Surface: **burnished**

MC 31

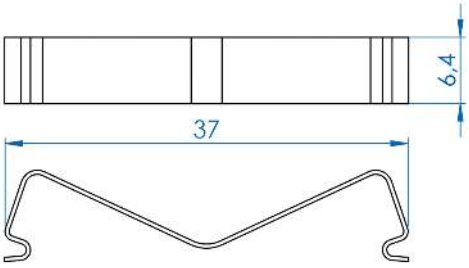
Mounting Clip for heat sink PR 31



Material: **Spring steel** Surface: **galvanized**

MC 32

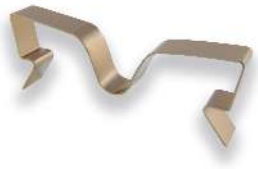
Mounting Clip for heat sink PR 32

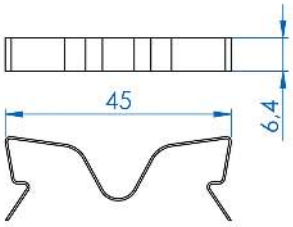


Material: **Spring steel** Surface: **burnished**

MC 33

Mounting Clip for heatsink PR 33

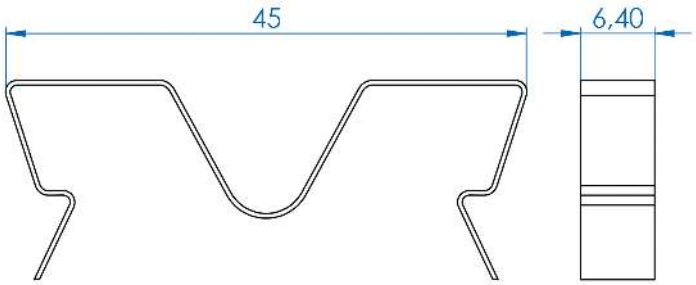




Material: **Spring steel**

Surface: **burnished**

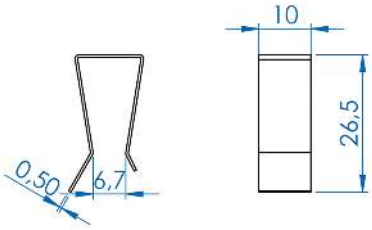
MC 34



Material: **Stainless steel**

Surface:

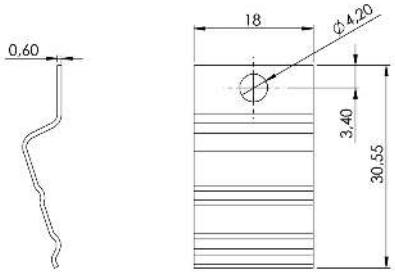
MC 740



Material: **Spring steel**

Surface: **galvanized**

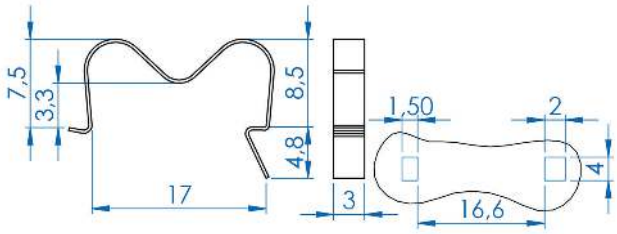
MC 747



Material: **Stainless steel**

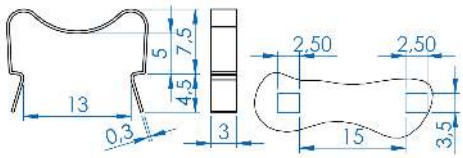
Surface: **Blank**

MC 780



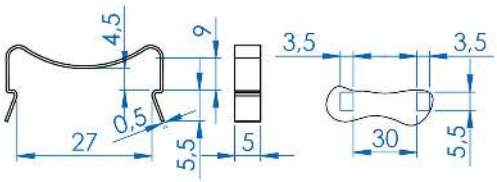
For Casing: **TO 220** Material: **Stainless steel** Surface: **Blank**

MC 782



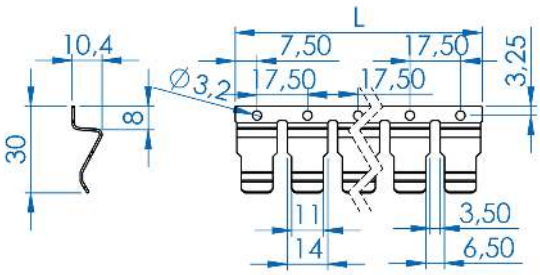
For Casing: **TO 220** Material: **Stainless steel** Surface: **Blank**

MC 786



For Casing: **TO 218, TOP 3** Surface: **Blank**

MCU



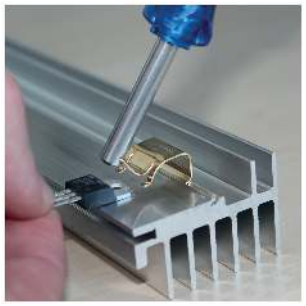
For Casing: **TO 218, TO 220, TO 247, TO 264, TO 264, SOT 32, SIP Multiwatt** Material: **Stainless steel** Surface:

article	Clip length (L) [mm]	Number of clips
MC U1	15	1
MC U2	32.5	2
MC U3	50	3
MC U4	67.5	4
MC U5	85	5
MC U6	102.5	6
MC U7	120	7
MC U8	137.5	8
MC U9	155	9
MC U10	172.5	10

Multi-Tool *Clips*

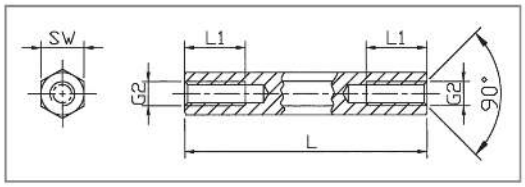
Practical tool for installation of clips from Alutronic

The Alutronic clip tool is suitable for all Alutronic mounting clips of type MC725, MC726, MC773 and MC797. Just like a screwdriver, you can hold the tool comfortably in your hand.



BRASS, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Brass 2.0401
Surface nickel plated (E2E)



Thread lengths [mm]

L	L1 bei M2	L1 bei M2,5 bis M8
5	5	5
6	6	6
8	8	8
10	10	10
12	6	12
15	6	15
18	6	9
from 20	6	10

Minimum tensile strength: 430 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm

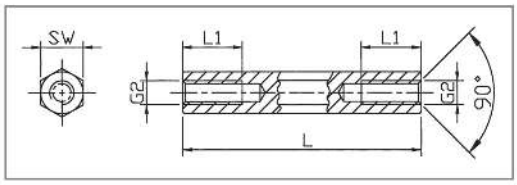
Lengths [mm]

Order No.	SW (hexa-gonal)	Thread	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 656	SW 4	M2	05	06	08	10	12	15	18	20	25	30	35	40	45	50										
DI 662	SW 4	M2,5	05	06	08	10	12	15	18	20	25	30	35	40	45	50										
DI 648	SW 5	M2,5	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 650	SW 5	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 652	SW 5,5	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 425	SW 6	M3	05		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 651	SW 7	M4	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 664	SW 8	M5			08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 663	SW 10	M6				10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 426	SW 13	M8						15		20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

Ordering example: DI 656/18

STEEL, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Steel 1.0718
Surface zinc plated (A3F)
(optional also blank)



Internal thread lengths [mm]

L	L1 bei M2	L1 at M2,5 to M5	L1 bei M6	L1 bei M8
5	5	5	5	
8	8	8	8	
10	10	10	10	
12	6	12	12	
15	6	15	15	15
18	6	9	9	
20	6	10	10	20
from 30	6	10	12	14

Minimum tensile strength: 500 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

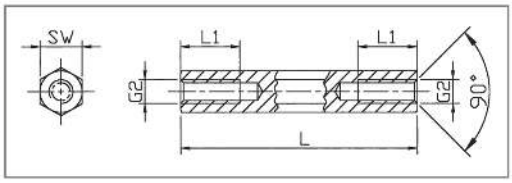
Lengths [mm]

Order No.	SW (hexagonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 619	SW 4	M2	05	08	10	12	15	18	20	25	30	35	40												
DI 602	SW 4	M2,5	05	08	10	12	15	18	20	25	30	35	40												
DI 613	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 612	SW 5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 642	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 640	SW 6	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 668	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 641	SW 8	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 646	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 657	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 427	SW 13	M8					15		20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

Ordering example: DI 619/12

STAINLESS STEEL, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Stainless steel 1.4305



Internal thread lengths [mm]

L	M2.5+M3	M4	M5	M6	M8
5	5	5			
8	8	8	8		
10	10	10	10	10	
12	12	12	12	12	
15	7	15	15	15	15
18	7	9	9	9	18
20	7	9	10	10	20
25	7	9	10	12	12
from 30	7	9	10	12	14

Minimum tensile strength: 750 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

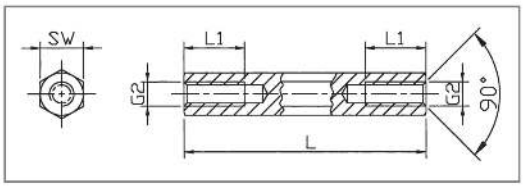
Lengths [mm]

Order No.	SW (hexa-gonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 428	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 670	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 671	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 672	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 673	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 429	SW 13	M8					15		20	25	30	35	40	45	50		60		70		80		90		100

Ordering example: DI 672/20

ALUMINIUM, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Aluminium 3.1655



Internal thread lengths [L1 in mm]

L	M2.5+M3	M4	M5	M6	M8
5	5	5			
8	8	8	8		
10	10	10	10	10	
12	12	12	12	12	
15	7	15	15	15	15
18	7	9	9	9	18
20	7	9	10	10	20
25	7	9	10	12	12
from 30	7	9	10	12	14

Minimum tensile strength: 310 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

Order No.	SW (hexagonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 500	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 513	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 504	SW 6	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 505	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 511	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 501	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 512	SW 13	M8					15		20	25	30	35	40	45	50		60		70		80		90		100

Ordering example: DI 500/12

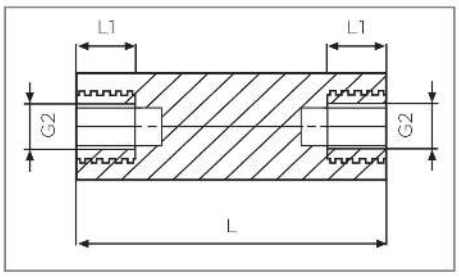
POLYAMIDE, BRASS THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Body: Polyamide 6.6
Thread: Brass, nickel plated
Flammability Rating V2
Colour white

Contact resistance: 10^{12} Ohm / cm
Dielectric strength: 50 kV / mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Lengths (L) in mm increments
DI 678	SW 6	M2,5	15-65
DI 679	SW 6	M3	15-65
DI 680	SW 8	M4	15-65
DI 681	SW 10	M5	15-70

Note: The pull-out strength and torques may vary depending on application and ambient influences (e.g. temperature, air humidity, etc.). for critical applications please carry out trials. Alutronic does not assume any liability for the specified strength values.



Strength / resistance values

Thread lengths [mm]	
G1=G2	L1
M2,5	6
M3	6
M4	6
M5	6

Torques [Nm]		
SW6	M2,5	1,3
SW6	M3	1,3
SW8	M4	3,0
SW10	M5	4,5

Pull-out torques [N]		
SW6	M2,5	300
SW6	M3	300
SW8	M4	600
SW10	M5	800

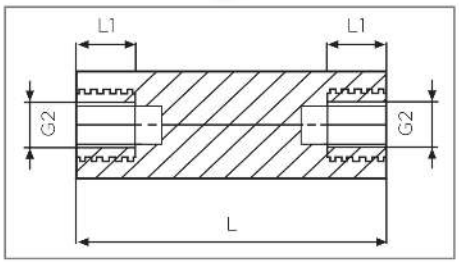
POLYAMIDE, BRASS THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Body: Polyamide 6.6
Thread: Brass, blank
Flammability Rating V2
Colour natural

Contact resistance: 10^{12} Ohm / cm
Dielectric strength: 50 kV / mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Lengths (L) in mm increments
DI 581	SW 13	M6	25-100
DI 582	SW 15	M8	25-100

Note: The pull-out strength and torques may vary depending on application and ambient influences (e.g. temperature, air humidity, etc.). for critical applications please carry out trials. Alutronic does not assume any liability for the specified strength values.



Strength / resistance values

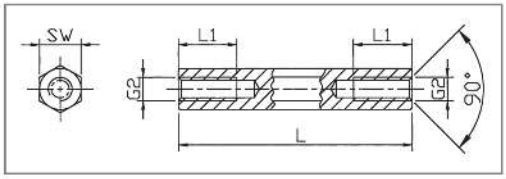
Thread lengths [mm]	
G1=G2	L1
M6	11
M8	11

Torques [Nm]		
SW13	M6	12,0
SW15	M8	18,0

Pull-out torques [N]		
SW13	M6	1000
SW15	M8	1600

POLYAMIDE, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / internal
Material Polyamid 6.0 GV
Flammability Rating HB
Colour black



Thread G2	L (mm)	L1 (mm)
M2/M2,5	to 14	Dead-end thread
	15-20	half length
	from 21	10
M3	to 15	Dead-end thread
	16-20	half length
	from 21	10
M4/M5/M6	to 20	Dead-end thread
	from 21	10

Contact resistance DIN 53 482: $>10^{12}$ Ohm/cm
Dielectric strength DIN 54 481: 40 kV/mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Standard lengths in mm-increments
DI 635	SW 5	M2	von 5 mm bis 45 mm
DI 637	SW 5	M2,5	von 4 mm bis 55 mm
DI 636	SW 6	M3	von 5 mm bis 65 mm
DI 639	SW 8	M4	von 5 mm bis 68 mm
DI 632	SW 10	M5	von 5 mm bis 65 mm
DI 633	SW 10	M6	von 4 mm bis 65 mm

Ordering example: DI 635/11

BRASS, SELF-TAPPING THREAD

Spacer bolts
Type hexagonal
Styles internal / external with undercut

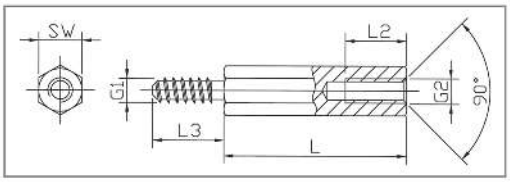
Material Brass 2.0401
Surface nickel plated (E2E)

External hread G1 [mm]

Thread size	l3	d1	d2
ST2,2	5	2,1	1,6
ST2,9	6	2,8	2,1
ST3,3	6	3,2	2,3
ST3,5	7	3,4	2,6
ST4,2	8	4,1	3,0
ST4,8	8	4,7	3,5
ST6,3	10	6,1	4,8

Internal thread G2 [mm]

L (mm)	l2 (mm)
8	5
10	6
12	7
15	10
20	10



Styles DIA / internal / enternal

Tolerance for lenght dimensions: +/- 0,1 mm

Standardlengths [mm]

Order No.	SW (mm)	Thread size G1	Thread size G2	08	10	12	15	20
DI 520	5	ST2,2	M2,5	08	10	12	15	20
DI 531	5,5	ST2,9	M3	08	10	12	15	20
DI 521	5,5	ST3,3	M3	08	10	12	15	20
DI 538	6	ST3,5	M3	08	10	12	15	20
DI 539	7	ST4,2	M4	08	10	12	15	20
DI 532	8	ST4,8	M5	08	10	12	15	20
DI 533	10	ST6,3	M6		10	12	15	20

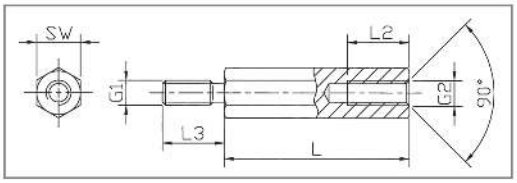
Ordering example: DI 520/15

BRASS, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / external
with undercut

Material Brass 2.0401
Surface nickel plated (E2E)

(Illustration: Brass blank, optional bl.)



Internal thread lengths [mm]

L	L2 bei M2	L2 at M2,5 to M5	L2 at M6
5	3	3	
6	4	4	
8	5	5	
10	6	6	6
12	6	7	7
15	6	10	10
18	6	10	10
from 20	6	10	12

External thread lengths [mm]

G1=G2	L3
M2	5
M2,5	6
M3	6+8
M4	8
M5	8
M6	10

Minimum tensile strength: 430 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm

Lengths [mm]

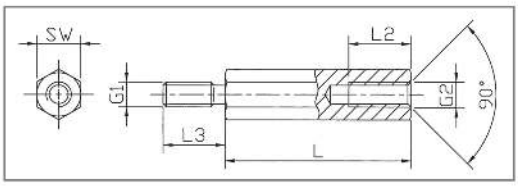
Order No.	SW (hexagonal)	Thread	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 658	SW 4	M2	05	06	08	10	12	15	18	20	25	30	35	40	45	50										
DI 667	SW 4	M2,5	05	06	08	10	12	15	18	20	25	30	35	40	45	50										
DI 649	SW 5	M2,5	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 653	SW 5	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 655	SW 5,5	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 430	SW 6	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 654	SW 7	M4	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 665	SW 8	M5			08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 431	SW 10	M6				10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 992	SW 13	M8						15		20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

Ordering example: DI 658/10

STEEL, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / external
with undercut

Material Steel 1.0718
Surface zinc plated (A3F)



Internal thread lengths [mm]

L	L2 at M2	L2 at M2,5 to M5	L2 at M6	L2 at M8
5	3	3		
8	5	5		
10	6	6	6	
12	6	7	7	
15	6	10	10	10
18	6	10	10	
from 20	6	10	12	14

External thread lengths [mm]

G1=G2	L3
M2	5
M2,5	6
M3	6
M4	8
M5	8
M6	10
M8	14

Minimum tensile strength: 500 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

Order No.	SW (hexa-gonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 432	SW 4	M2	05	08	10	12	15	18	20	25	30	35	40												
DI 433	SW 4	M2,5	05	08	10	12	15	18	20	25	30	35	40												
DI 434	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 701	SW 5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 645	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 643	SW 6	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 669	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 644	SW 8	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 647	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 659	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 435	SW 13	M8					15		20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

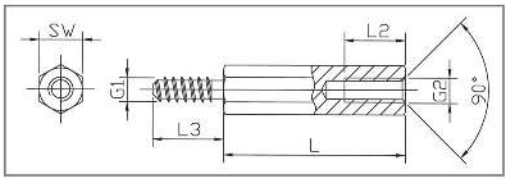
Ordering example: DI 679/30

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

STEEL, SELF-TAPPING THREAD

Spacer bolts
Type hexagonal
Styles internal / external
with undercut

Material Steel 1.0718
Surface zinc plated (A3F)



External threat G1 [mm]

Thread size	l3	d1	d2
ST2,2	5	2,1	1,6
ST2,9	6	2,8	2,1
ST3,3	6	3,2	2,3
ST3,5	7	3,4	2,6
ST4,2	8	4,1	3,0
ST4,8	8	4,7	3,5
ST6,3	10	6,1	4,8

Internal thread G2 [mm]

L (mm)	l2 (mm)
8	5
10	6
12	7
15	10
20	10

Tolerance for lenght dimensions: +/- 0,1 mm

Standardlengths [mm]

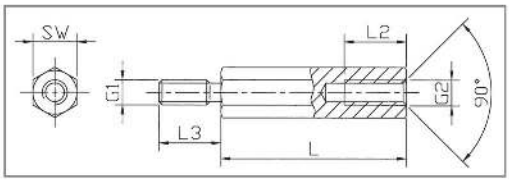
Order No.	SW (mm)	Thread size G1	Thread size G2	08	10	12	15	20
DI 691	5	ST2,2	M2,5	08	10	12	15	20
DI 692	5,5	ST2,9	M3	08	10	12	15	20
DI 690	5,5	ST3,3	M3	08	10	12	15	20
DI 693	6	ST3,5	M3	08	10	12	15	20
DI 694	7	ST4,2	M4	08	10	12	15	20
DI 695	8	ST4,8	M5	08	10	12	15	20
DI 696	10	ST6,3	M6		10	12	15	20

Ordering example: DI 691/15

STAINLESS STEEL, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / external
with undercut

Material Stainless steel 1.4305



Internal thread lengths [L2 in mm]

L	M2.5+M3	M4	M5	M6	M8
5	2,5				
8	5	5			
10	6	6	6	5	
12	7	8	8	7	
15	7	9	10	10	10
18	7	9	10	12	12
from 20	7	9	10	12	14

External thread lengths [L3 in mm]

G1=G2	L3
M3	6
M4	8
M5	8
M6	10
M8	14

Minimum tensile strength: 750 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

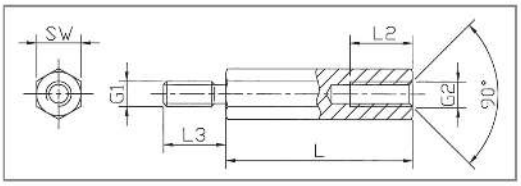
Order No.	SW (hexa-gonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 540	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 674	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 675	SW 7	M4		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 676	SW 8	M5			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 677	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 548	SW 13	M8					15		20	25	30	35	40	45	50		60		70		80		90		100

Ordering example: DI 540/55

ALUMINIUM, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / external
with undercut

Material Aluminium 3.1655



Internal thread lengths [L2 in mm]

L	M2.5+M3	M4	M5	M6	M8
5	2,5				
8	5	5			
10	6	6	6	5	
12	7	8	8	7	
15	7	9	10	10	10
18	7	9	10	12	12
from 20	7	9	10	12	14

External thread lengths [L3 in mm]

G1=G2	L3
M3	6
M4	8
M5	8
M6	10
M8	14

Minimum tensile strength: 310 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

Order No.	SW (hexagonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 502	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 503	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 506	SW 6	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 510	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 514	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 507	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 515	SW 13	M8					15		20	25	30	35	40	45	50		60		70		80		90		100

Ordering example: DI 502/40

Internal/External

POLYAMIDE, BRASS THREAD

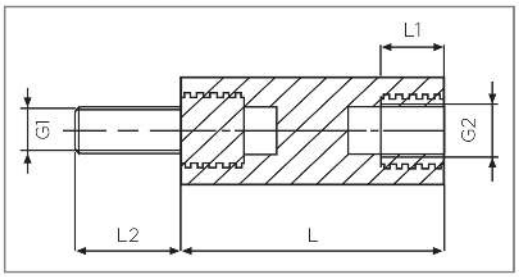
Spacer bolts
Type hexagonal
Styles internal / external
without undercut DIN 76
Material Body: Polyamide 6.6
Thread: Messing nickel plated
Colour white
Flammability Rating V2
Standard Pack 100 pcs

Contact resistance: 10^{12} Ohm / cm
Dielectric strength: 50 kV / mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Lengths (L) in mm increments
DI 682	SW 6	M2,5	15-65
DI 683	SW 6	M3	15-65
DI 684	SW 8	M4	15-65
DI 685	SW 10	M5	15-70

Ordering example: DI 684/17

Note: The pull-out strength and torques may vary depending on application and ambient influences (e.g. temperature, air humidity, etc.). for critical applications please carry out trials. Alutronic does not assume any liability for the specified strength values.



Strength / resistance values

Thread lengths [mm]

G1=G2	L1	L2
M2,5	6	6
M3	6	6
M4	6	8
M5	6	10

Torques [Nm]

SW6	M2,5	1,3
SW6	M3	1,3
SW8	M4	3,0
SW10	M5	4,5

Pull-out torques [N]

SW6	M2,5	300
SW6	M3	300
SW8	M4	600
SW10	M5	800

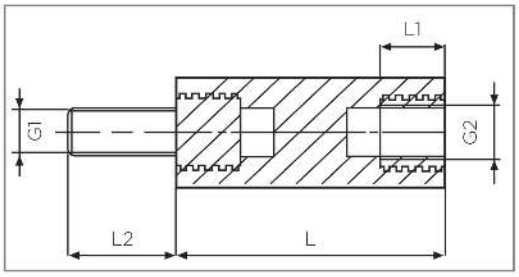
POLYAMIDE, BRASS THREAD

Spacer bolts
Type hexagonal
Styles internal / external
without undercut DIN 76
Material Body: Polyamide 6.6
Thread: Messing blank
Flammability Rating V2
Colour natural
Standard Pack 100 pcs

Contact resistance: 10^{12} Ohm / cm
Dielectric strength: 50 kV / mm
Tolerance for lenght dimensions: +/- 0,2 mm

Order No.	SW (hexagonal)	Thread	Lengths (L) in mm increments
DI 597	SW 13	M6	25-100
DI 598	SW 15	M8	25-100

Note: The pull-out strength and torques may vary depending on application and ambient influences (e.g. temperature, air humidity, etc.). for critical applications please carry out trials. Alutronic does not assume any liability for the specified strength values.



Strength / resistance values

Thread lengths [mm]

G1=G2	L1	L2
M6	11	12
M8	11	14

Torques [Nm]

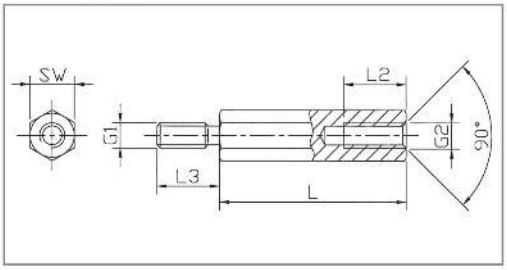
SW13	M6	12,0
SW15	M8	18,0

Pull-out torques [N]

SW13	M6	1000
SW15	M8	1600

POLYAMIDE, METRIC THREAD

Spacer bolts
Type hexagonal
Styles internal / external
Material Polyamid 6.6
Colour black
Flammability Rating V2



Contact resistance DIN 53 482: $>10^{12}$ Ohm/cm
Dielectric strength DIN 54 481: 40 kV/mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Standardlängen in mm-Staffelung
DI 627	SW 5	M2,5	from 5 mm to 45 mm
DI 638	SW 6	M3	from 5 mm to 60 mm
DI 628	SW 8	M4	from 5 mm to 60 mm
DI 629	SW 10	M5	from 8 mm to 65 mm
DI 630	SW 10	M6	from 8 mm to 60 mm

Internal thread lengths [mm]

L (mm)	L2 (mm)
5	3,0
ab 6	4,0
ab 8	6,0
ab 10	8,0
ab 12	10,0

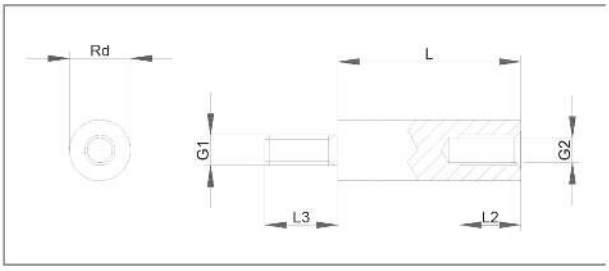
External thread lengths [mm]

G1=G2	L3 (mm)
M2,5	8
M3	8
M4	8
M5	8
M6	10

Ordering example: DI 627/6

POLYAMIDE, METRIC THREAD

Spacer bolts
Type round
Styles internal / external
Material Polyamid 6.6
Colour black
Flammability Rating V2



Contact resistance DIN 53 482: $>10^{12}$ Ohm/cm
Dielectric strength DIN 54 481: 40 kV/mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	Diameter (mm)	Thread	Standard lengths in mm-increments
DI 594	6	M3	from 5 mm to 60 mm
DI 599	8	M4	from 5 mm to 60 mm

Internal thread lengths [mm]

L (mm)	L2 (mm)
5	3,0
from 6	4,0
from 8	6,0
from 10	8,0
from 12	10,0

External thread lengths [mm]

G1=G2	L3 (mm)
M2,5	8
M3	8
M4	8
M5	8
M6	10

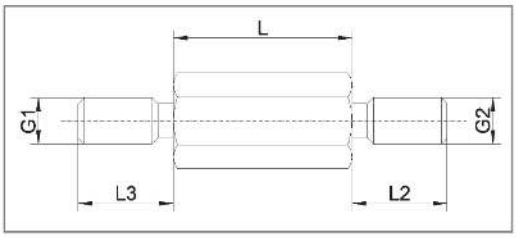
Ordering example: DI 594/10

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

BRASS, METRIC THREAD

Spacer bolts
Type hexagonal
Styles external / external
with undercut

Material Brass 2.0401
Surface nickel plated (E2E)



External thread lengths [mm]

G1=G2	L2=L3
M2	5
M2,5	6
M3	6+8
M4	8
M5	8
M6	10

Minimum tensile strength: 430 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm

Lengths [mm]

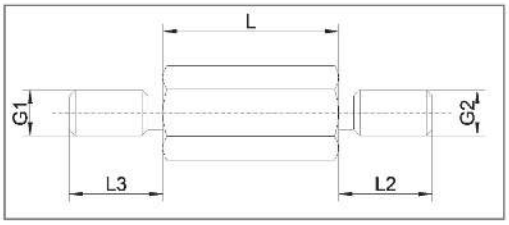
Order No.	SW (hexa-gonal)	Thread	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 522	SW 4	M2	05	06	08	10	12	15	18	20	25	30	35	40	45	50										
DI 523	SW 4	M2,5	05	06	08	10	12	15	18	20	25	30	35	40	45	50										
DI 524	SW 5	M2,5	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 525	SW 5	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60								
DI 526	SW 5,5	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 527	SW 6	M3	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 528	SW 7	M4	05	06	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 529	SW 8	M5			08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 530	SW 10	M6				10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 534	SW 13	M8						15		20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

Ordering example: DI 522/30

STEEL, METRIC THREAD

Spacer bolts
Type hexagonal
Styles external / external
with undercut

Material Steel 1.0718
Surface zinc plated (A3F)



External thread lengths [mm]

G1=G2	L2=L3
M2	5
M2,5	6
M3	6
M4	8
M5	8
M6	10
M8	14

Minimum tensile strength: 500 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

Order No.	SW (hexagonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 549	SW 4	M2	05	08	10	12	15	18	20	25	30	35	40												
DI 550	SW 4	M2,5	05	08	10	12	15	18	20	25	30	35	40												
DI 551	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 552	SW 5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 543	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 544	SW 6	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 545	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 546	SW 8	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 547	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 537	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 554	SW 13	M8					15		20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

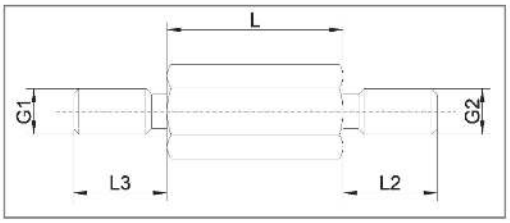
Ordering example: DI 544/20

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

STAINLESS STEEL, METRIC THREAD

Spacer bolts
Type hexagonal
Styles external / external
with undercut

Material Stainless steel 1.4305



External thread lengths [L3 in mm]

G1=G2	L2=L3
M2.5-M3	6
M4	8
M5	8
M6	10
M8	14

Minimum tensile strength: 750 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

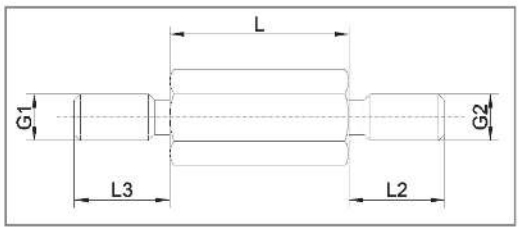
Order No.	SW (hexagonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 555	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 556	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 557	SW 7	M4		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 559	SW 8	M5			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 560	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 561	SW 13	M8					15		20	25	30	35	40	45	50		60		70		80		90		100

Ordering example: DI 555/45

ALUMINIUM, METRIC THREAD

Spacer bolts
Type hexagonal
Styles external / external
with undercut

Material Aluminium 3.1655



External thread lengths [L3 in mm]

G1=G2	L2=L3
M3	6
M4	8
M5	8
M6	10
M8	14

Minimum tensile strength: 310 N/mm²
Tolerance for lenght dimensions: +/- 0,1 mm
(applies to SW 13 : DIN 2768-m)

Lengths [mm]

Order No.	SW (hexagonal)	Thread	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 508	SW 5	M2,5	05	08	10	12	15	18	20	25	30	35	40	45	50										
DI 509	SW 5,5	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 516	SW 6	M3	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70						
DI 517	SW 7	M4	05	08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 518	SW 8	M5		08	10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 519	SW 10	M6			10	12	15	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
DI 595	SW 13	M8					15		20	25	30	35	40	45	50		60		70		80		90		100

Ordering example: DI 508/18

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

POLYAMIDE, BRASS THREAD

Spacer bolts

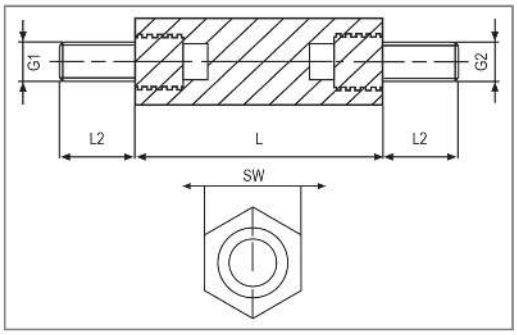
Type	hexagonal
Styles	external / external without undercut DIN 76
Material	Body: Polyamide 6.6 Thread: Brass, nickel plated
Flammability Rating	V2
Colour	white

Strength / resistance values

Thread lengths [mm]	
G1=G2	**L2 (mm)**
M2,5	6
M3	6
M4	8
M5	10

Torques [Nm]		
SW6	M2,5	1,3
SW6	M3	1,3
SW8	M4	3,0
SW10	M5	4,5

Pull-out torques [N]		
SW6	M2,5	300
SW6	M3	300
SW8	M4	600
SW10	M5	800



Note: The pull-out strength and torques may vary depending on application and ambient influences (e.g. temperature, air humidity, etc.). for critical applications please carry out trials. Alutronic does not assume any liability for the specified strength values.

Contact resistance: 10^{12} Ohm/cm
Dielectric strength: 50 kV/mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Lengths (L) in mm increments
DI 686	SW 6	M2,5	15-65
DI 687	SW 6	M3	15-65
DI 688	SW 8	M4	15-65
DI 689	SW 10	M5	15-70

POLYAMIDE, BRASS THREAD

Spacer bolts

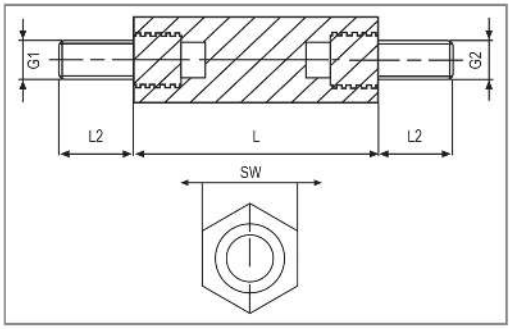
Type	hexagonal
Styles	external / external without undercut DIN 76
Material	Body: Polyamide 6.6 Thread: Messing blank
Colour	natural

Strength / resistance values

Thread lengths [mm]	
G1=G2	**L2 (mm)**
M6	12
M8	14

Torques [Nm]		
SW13	M6	12,0
SW15	M8	18,0

Pull-out torques [N]		
SW13	M6	1000
SW15	M8	1600



Note: The pull-out strength and torques may vary depending on application and ambient influences (e.g. temperature, air humidity, etc.). for critical applications please carry out trials. Alutronic does not assume any liability for the specified strength values.

Contact resistance: 10^{12} Ohm/cm
Dielectric strength: 50 kV/mm
Tolerance for lenght dimensions: +/- 0,2 mm

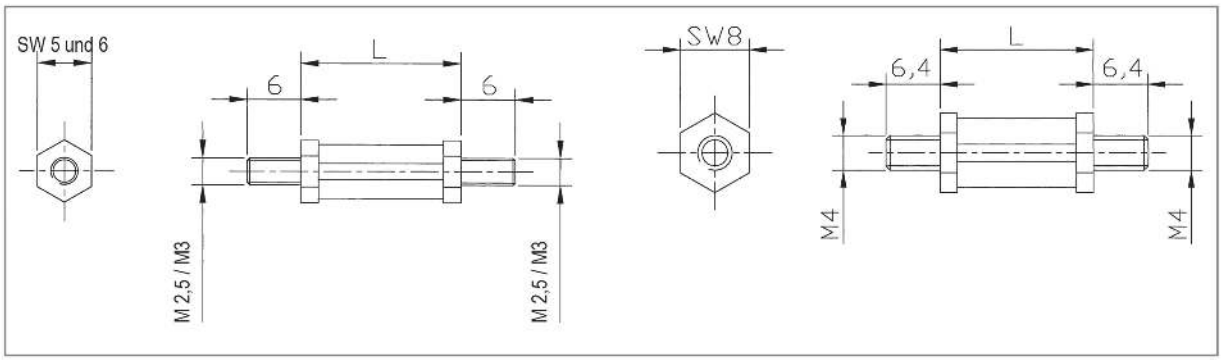
Order No.	SW (hexagonal)	Thread	Lengths (L) in mm increments
DI 590	SW 13	M6	25-100
DI 579	SW 15	M8	25-100

ALUTRONIC
SOLUTIONS FOR COOL RESULTS

POLYAMIDE, METRIC THREAD

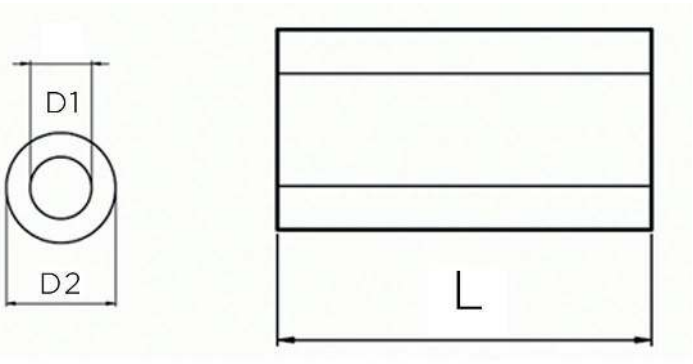
Spacer bolts

Type	hexagonal
Styles	external / external
Material	Polyamid 6.6
Flammability Rating	V2
Colour	black



Contact resistance DIN 53 482: >10^{12} Ohm/cm
Dielectric strength DIN 54 481: 40 kV/mm
Tolerance for lenght dimensions: +/- 0,1 mm

Order No.	SW (hexagonal)	Thread	Standard lengths in mm-increments
DI 576	SW 5	M2,5	from 3 mm to 65 mm
DI 577	SW 6	M3	from 5 mm to 65 mm
DI 578	SW 8	M4	from 5 mm to 65 mm



Material: Polystyrene
Resistance to heat: 70°C
Colour: Black
Dielectric strength: 90 V/mm

Type	Inside Diameter - D1 [mm]	Outside Diameter - D2 [mm]	Length - L [mm]
DI 600	3,6	7	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
DI 610	4,5	8	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
DI 615	5,5	10	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

Material: Makrolon
Resistance to heat: 135°C
Colour: Grey
Dielectric strength: 90 KV/mm

Type	Inside Diameter - D1 [mm]	Outside Diameter - D2 [mm]	Length - L [mm]
DI 601	3,6	7	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
DI 611	4,5	8	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
DI 616	5,5	10	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

Material: Brass, nickel-plated
Tolerance: +/- 0.1mm

Type	Inside Diameter - D1 [mm]	Outside Diameter - D2 [mm]	Length - L [mm]
DI 617	3,2	6	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
DI 618	4,3	8	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

WK800 (Hernon 746)

WK 800 is an excellent thermally conducting two-component adhesive with very short curing time.
It offers an effective thermal connection between electronic components and heat sinks.
The material has an extraordinary adhesive property.

The adhesive consists of a pasty adhesive WK 800 and a liquid activator WK 800-A.
The adhesive is available in container sizes of **4 ml** and **25 ml** (spray) and the activator is available as a **10 ml** bottle with brush

The components are not mixed. It suffices to apply a small quantity of the adhesive on one of the surfaces to be bonded and smearing the other adhesive surface with the activator.
The surfaces are joined by pressing them together. It is possible to make a correction within 15-30 seconds. The adhesion is sturdy after 5 minutes at room temperature and cures within 24 hours completely.
Comprehensive tests have proven the excellent thermal and mechanical properties of WK 800.
Consistent and uniform quality is ensured with the help of on-going quality supervision. An in-depth test should be conducted for specific applications.

		WK 800
Colour		
Max. adhesive gap	[mm]	0,25
Shear strenght	[N/mm²]	5,5
Tensile strenght	[N/mm²]	15,2
Thermal expansion coefficient	[ppm/K]	110
Thermal Conductivity	[W / mK]	0,76
Dielectric Strenght	[kV/mm]	26,78
Flammability		V-O
Processing temperature	[°C]	20-28
Temperature range	[°C]	-55 to +150
Storability temperature	[°C]	8 - 28
Storability at 22°C	[Jahre]	min. 3

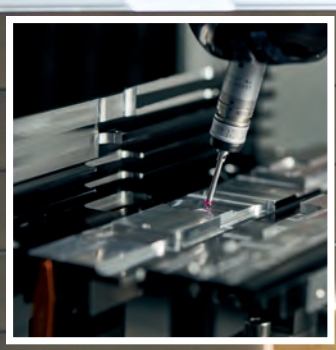
AREAS OF APPLICATION

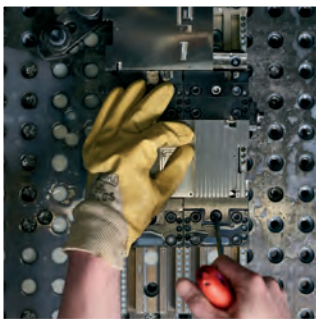
WK 800 fixes heat sinks to components and parts. It allows parts and components to be stuck even on vertical cooling surfaces, and similarly on metallic housing surfaces, side walls without clamps, screws or other mechanical fixture. Typical applications include adhesion of transformers, microprocessors and other heat-dissipating component and PCBs (Printed Circuit Boards) or coolers. WK 800 is particularly suitable for fixing LED chips on heat sinks.
WK 800 has several benefits compared to traditional adhesive compounds such as e.g. thermal hot adhesives or epoxy adhesives. It ensures permanent application with reliable compliance of the thermal and technical properties. The adhesive can be used easily and thus reduces costs in production as well as repair times in service.
Surfaces moistened with WK 800 adhesive or activator can rest for an almost unlimited period of time without the properties of the adhesive location getting deteriorated.

INSTRUCTIONS FOR USE

Recommended aid: cotton cloth, lint-free, cleaning agent [e.g. toluene, isopropyl alcohol]
Please pay attention to the safety regulations for the solvent. Wear rubber gloves when working for a longer time!

We look forward to work with you!





ALUTRONIC Kühlkörper GmbH & Co KG
Auf der Löbke 9-11
D-58553 Halver
Tel. +49 2353 915 5
Fax +49 2353 915 333
info@alutronic.de
www.alutronic.com

For our international sales contacts, please visit www.alutronic/contact/distributors
100% recycled paper, CO_2 neutral print