

Hliníkové Chladiče

Aluminium Heatsinks

GAMAaluminium

ISO-9001, 14001, 18001 Certified

EXPORT:





Marián Gahr
konateľ / CEO

Vážení obchodní partneri,

Myslím si, že väčšina z Vás už nemusíme predstavovať a takisto presvedčať Vás, že **GAMAaluminium** je na trhu s hliníkovými chladičmi dlhodobo stabilná a silná spoločnosť s neustále rozširujúcim sortimentom chladičov a hliníkových profilov. Pre Vás, ktorí ste nás objavili len dnes, je venovaných pár riadkov.

Sme výrobná – obchodná spoločnosť zameraná na opracovanie a predaj hliníkových chladičov a profilov, ktoré nájdu uplatnenie prevažne v elektrotechnickom odvetví.

Spolupráca s nami sa oplatí!

Naša firma sa neustále rozvíja a rastie či už v oblasti technického rozvoja v oblasti personálnej, ako aj v oblasti zlepšovania kvality poskytovaných služieb čo dokazuje aj získanie a udržiavanie systému kvality. Sme držiteľmi certifikátov ISO 9001:2008, ISO 14001:2004, ISO 18001:2007. Najnovšie sme získali Certifikát o spracovaní odpadu z obalov. Nakoľko pracujeme z nebezpečnými látkami ochrana životného prostredia patrí medzi naše priority.

Prevádzka firmy sa nachádza vo vlastných priestoroch, ktoré neustále prispôbujeme potrebám výroby. Firma je vybavená modernými CNC strojmi značky DOOSAN A HURCO, a tento rok plánujeme zriadiť nové priestory pre ďalšie takéto nové CNC stroje. V roku 2011 sme taktiež postavili nový sklad hotových výrobkov. Na delenie materiálu používame tri kotúčové píly z toho jednu automatickú jednokotúčovú pílu a jednu dvojkotúčovú automatickú pílu.

V poslednom čase rastie dopyt po veľkých chladičoch, ktoré sa nedajú vyrobiť klasickou technológiou a preto jediným z riešení je takýto chladič zvariť z viacerých kusov. Aj v tejto oblasti vieme pre zákazníka takýto chladič vyrobiť. Pre tento účel máme robotizované pracovisko, ktoré je osadené zvarčím robotom OTC DAIHEN. Aby sme mohli pre zákazníkov dodávať chladiče podľa jeho požiadaviek, nielen opracované na CNC strojoch, ale aj s povrchovou úpravou, máme vlastnú linku na anodickú oxidáciu – eloxovanie. Štandardne robíme prírodný a čierny elox. V prípade požiadavky zákazníka vieme urobiť aj elox modrý, zlatý a červený. To upevňuje postavenie firmy na trhu s hliníkovými chladičmi a ich opracovaním. Naša flexibilita v oblasti obchodu a výroby z nás robí výborného partnera pre realizáciu Vašich zákazok.



Minulosť, prítomnosť, budúcnosť ...

História výroby a predaja hliníkových chladičov, ktoré firma GAMAaluminium dnes ponúka sa začala písať už v roku 1997. Počas tohto obdobia sa firma vyprofilovala a má dominantné postavenie už nie len na Slovensku. V spolupráci s našimi obchodnými zástupcami sa náš sortiment predáva v Českej republike, v Poľsku, v Maďarsku, v Nemecku a v Rumunsku. Okrem toho máme zákazníkov v Anglicku, vo Švédsku, vo Francúzku, v Belgicku, v Rakúsku a v Taliansku.



Neustále zabezpečujeme kontinuálny rast výroby a predaja podľa špecifických požiadaviek zákazníka, čo potvrdzuje aj neustále pribúdanie nových zákazníkov. Získavaniu nových zákazníkov prispieva aj účasť na domácich a zahraničných výstavách.

V roku 2011 to boli výstavy AMPÉR, ELOSYS, ELEKTRO MOSKVA a MIDEST Paríž. Naše chladiče sa presadzujú na európskom trhu a je perspektíva na ich aplikáciu aj do budúcnosti. Dokladuje to aj množstvo ktoré každoročne rastie. V roku 2010 sme predali cca 100 ton chladiacich profilov a v roku 2011 to už bolo viac ako 200 ton. Aj v tomto roku je naším hlavným cieľom kvalita, rozšírenie sortimentu podľa požiadaviek zákazníkov a rozširovanie výrobných priestorov a modernizácia technologických zariadení.

Hlavný výrobný program firmy tvoria:

- Hliníkové chladiče pre elektrotechnický priemysel
- Hliníkové profily pre LED svetlá
- Zákaznícke profily
- Výroba a predaj hliníkových profilov
- Delenie hliníka na automatických pílach
- Opracovanie hliníka na CNC strojoch
- Zváranie hliníka v ochrannnej atmosfére
- Eloxovanie – povrchová úprava Al profilov anodickou oxidáciou

Hliník ...

Je univerzálny, ľahký a zároveň pevný materiál, ktorý môže byť vyrobený, spracovaný a lisovaný do nespočetného množstva tvarov.

Vynikajúce mechanické a chemické vlastnosti hliníka, spojené s jeho ľahkou tvárnosťou, umožňujú vytvoriť produkt ktorý nachádza široké použitie vo všetkých priemyselných odvetviach.

Nami ponúkané lisované profily sú vyrábané z hliníka a z hliníkových zliatin AlMgSi 0.5, AlMgSi 0.7 resp. AlMgSi 1 technológiou pretláčaného lisovania za tepla. Profily sú lisované v toleranciách podľa rozmerovej normy EN 755.

Povrchová úprava hliníka ...

Je dôležitou súčasťou finálnych výrobkov. Zabráni prirodzenému oxidovaniu hliníka vplyvom atmosférického kyslíka na hliník, ktorá je závislá od vplyvu prostredia, v ktorom sa výrobok nachádza. Podľa toho sa vplyvom prostredia a času mení aj vrstva oxidu a vzhľad hliníkového materiálu. Tým sa mení aj tepelná vodivosť hliníkových materiálov a farebná stálosť. Okrem funkčnej stránky spĺňa aj estetické požiadavky po aplikácii vhodnej povrchovej úpravy. Realizujeme povrchovú úpravu v odtieňoch prírodná, čierna, zlatá, modrá, červená ...



Hliníkové chladiče ...

Využitie hliníkových chladičov v praxi nachádza široké uplatnenie všade tam, kde je kladená potreba odvádzať nadbytočné teplo z elektronických súčiastok. Z toho vyplýva nezastupiteľná potreba hliníkových chladičov pre dosiahnutie požadovanej funkčnosti a spoľahlivosti elektrotechnických výrobkov a zariadení. V súčasnosti vám ponúkame viac ako 130 chladičových profilov a tento sortiment neustále rozširujeme. Nové chladiče aktuálne zverejňujeme na našej webovej stránke **www.gamaaluminium.sk** V poslednom období sme sortiment rozšírili o chladiče vhodné pre LED svetlá. Spolupracujeme so zákazníkmi pri návrhu vlastných chladičov, tzv. zákazníckych. Tento sortiment z pochopiteľných dôvodov v tomto katalógu neuvádzame. Takýchto profilov máme viac ako 50 druhov. A nie sú to len chladiče .

Naše motto:

"Kvalita je, keď sa vracia zákazník a nie tovar."

Všeobecný popis

Hliníkové chladiče

sa vyrábajú z lisovaných profilov, ktoré nakupujeme od rôznych domácich a zahraničných výrobcov. Profily nakupujeme a skladujeme v dĺžkach 2000 – 4000 mm.

Niektoré typy chladičov v aktuálnej ponuke sa môžu mierne líšiť od profilu uvedeného v katalógu, jedná sa hlavne o tvar rebier, môžu byť rovné alebo mierne zvlnené, hrúbka rebier a pod. Túto skutočnosť zo zákazníkom konzultujeme pred dodávkou.

Špecifická hmotnosť hliníka je 2,7 kg/dm³

Dodávané profily sú v súlade so smernicou RoHS

Normy

Hliníkové profily sú lisované podľa noriem EN 755-5 až 9. Tieto normy hovoria o prípustných odchýlkach skutočných profilov od menovitých hodnôt.

Materiál použitý na chladiče je AW6060 (Al Mg 0,7 Si) (ZH profily), príp. AW6063 (Al Mg Si) (ostatné profily), ktorých chemické zloženie zodpovedá hodnotám stanovených v norme EN 573-3.

Povrch profilov je podľa normy EN 755-1.

Pri opracovaní, pokiaľ nie sú vo výkresovej dokumentácii uvedené tolerancie a iné požiadavky, sa riadime všeobecnými toleranciami STN ISO 2768-1 triedy m, ktoré sa týkajú dĺžok, uhlov, rovinnosti, zrazení hrán, povrchu a pod.

Ponúkame ...

Profily dodávame napílené na požadované dĺžky, môžeme ich opracovať na CNC strojoch podľa dodanej dokumentácie, chladiče v prípade potreby zvárame na robotizovanom pracovisku a ponúkame aj povrchovú úpravu eloxovaním (elox prírodný, čierny, žltý, červený, modrý) alebo titanovaním.

Na požiadanie vieme zabezpečiť v spolupráci so SAV Bratislava meranie tepelného odporu pre konkrétny chladič.

V prípade že si z našej ponuky nevyberiete žiadny chladič, vieme zabezpečiť výrobu nového profilu podľa vašej požiadavky, prípadne zabezpečiť Vám profil od iných dodávateľov.

General description

Aluminium Heatsinks

are manufacturing from pressed profiles, which we buy from various domestic and foreign producers. The profiles we buy and store in lengths 2000 – 4000 mm.

Some types of heatsinks in the current offer may be slightly different from the profile specified in the catalog, mostly on the shape of the ribs - may be straight or slightly wavy, the thickness of the ribs and etc. This fact we consult with the customer before delivery.

A specific weight of aluminium is 2,7 kg/dm³

Supplied profiles are in accordance with the RoHS Directive

Standards

AL profiles are pressed according to a standard EN755-5 to 9. These standards speak about a tolerance of the actual profiles from the nominal values.

A material used for heatsinks is AW6060 (Al Mg 0,7 Si) (ZH profiles) or AW6060 (Al Mg Si) (other profiles) whose chemical composition corresponds to the values set down in standard EN 573-3.

A surface of the profiles is according to a standard EN 755-1.

Regarding to a machining, if the tolerance and other requirements are not mentioned in drawing documentation we follow the general tolerances STN ISO 2768 – 1 class m, concerning to a lengths, angles, flatness, deducting the edge, surface and etc.

We offered ...

We deliver a profiles cutted with required lengths, they can be machined by CNC machines according to a received documentation, in case of need we weld a heatsink at welding robotic workstation and we offer the surface treatment as well (natural, black, yellow, red, blue) or titan.

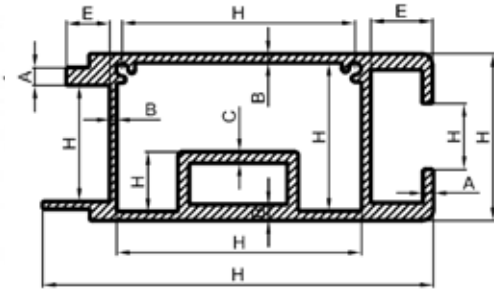
On request we provide in cooperation with SAS Bratislava measurement of thermal resistance for a particular heatsinks.

In case you do not choose any heatsink from our offer, we are able to provide a produce of new profile according to your requirements or provide a profile from another suppliers.

Výpis z normy EN 755-9 – Profily, odchýlky rozmerov a tvaru

Extract of EN 755-9 – Profiles, tolerances of dimensions and shape

Odchýlky rozmerov / Allowance of dimensions



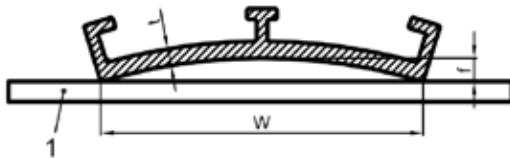
H – všetky rozmery okrem hrúbky steny
H – all dimensions except of the wall thickness

Rozmery v mm / Dimensions in mm

Rozmer H Dimension H		Odchýlky H pre opísanú kružnicu CD Allowance H for described circle CD				
nad over	do a vrátane to and inclusive	CD ≤ 100	100 < CD ≤ 200	200 < CD ≤ 300	300 < CD ≤ 500	500 < CD ≤ 800
-	10	± 0,25	± 0,30	± 0,35	± 0,40	± 0,50
10	25	± 0,30	± 0,40	± 0,50	± 0,60	± 0,70
25	50	± 0,50	± 0,60	± 0,80	± 0,90	± 1,0
50	100	± 0,70	± 0,90	± 1,1	± 1,3	± 1,5
100	150	-	± 1,1	± 1,3	± 1,5	± 1,7
150	200	-	± 1,3	± 1,5	± 1,8	± 2,0
200	300	-	-	± 1,7	± 2,1	± 2,4
300	450	-	-	-	± 2,8	± 3,0
450	600	-	-	-	± 3,8	± 4,2
600	800	-	-	-	-	± 5,0

Odchýlky vypuklosti – vydutosti / Allowance of convexity

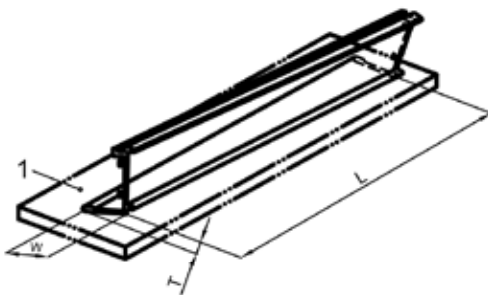
Rozmery v mm / Dimensions in mm



Šírka W Width W		Odchýlka f / Offset f		
nad over	do a vrátane to and inclusive	duté profily / tubular profiles		Plné profily
		Hrúbka steny t ≤ 5 Wall thickness t ≤ 5	Hrúbka steny t > 5 Wall thickness t > 5	Full profiles
-	30	0,30	0,20	0,20
30	60	0,40	0,30	0,30
60	100	0,60	0,40	0,40
100	150	0,90	0,60	0,60
150	200	1,20	0,80	0,80
200	300	1,80	1,20	1,20
300	400	2,40	1,60	1,60
400	500	3,00	2,00	2,00
500	600	3,60	2,40	2,40
600	800	4,00	3,00	3,00

Odchýlky skrútenia / Allowance of twist

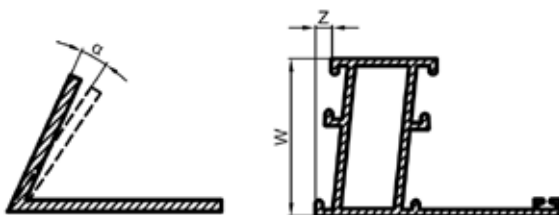
Rozmery v mm / Dimensions in mm



Šírka W Width W		Odchýlka f / Offset f		
nad over	do a vrátane to and inclusive	na 1 000 z dĺžky for 1000 of length	Na celkovej dĺžke L profilu Of total length L of profile	
			nad 1000 a vrátane 6000 over 1000 and inclusive 6000	nad 6000 over 6000
-	30	1,2	2,5	3,0
30	50	1,5	3,0	4,0
50	100	2,0	3,5	5,0
100	200	2,5	5,0	7,0
200	300	2,5	6,0	8,0
300	450	3,0	8,0	1,5 x L (L v metroch / in meter)
450	600	3,5	9,5	
600	800	4,5	10,0	

Odchýlky kolmosti / Allowance of perpendicularity

Rozmery v mm / Dimensions in mm



Šírka W Width W		Maximálna povolená odchýlka Z od pravého uhla Maximum allowable deviation Z from the right angle
nad over	do a vrátane to and inclusive	
-	30	0,4
30	50	0,7
50	80	1,0
80	120	1,4
120	180	2,0
180	240	2,6
240	300	3,1
300	400	3,5

allowance at an angle α other than the right is ± 1°

Meranie tepelného odporu chladičov (R_{th})

Tepelný odpor chladičov elektronických súčiastok je dôležitý údaj pre konštruktérov elektronických zariadení, ktorý umožňuje optimálne navrhnuť odvod stratového tepla súčiastky pri dodržaní jej maximálnej dovolenej pracovnej teploty a to pri minimalizácii rozmerov chladiča. Pri jednoduchších geometrických tvaroch je možné stanoviť tepelný odpor chladiča s dostatočnou presnosťou aj výpočtom, no pre komplexnejšie tvary so zložitým obtekaním vzduchu okolo chladiča je často potrebné uskutočniť meranie tepelného odporu.

Definícia tepelného odporu

Tepelný odpor chladiča R_{th} je definovaný ako podiel rozdielu maximálnej teploty chladiča T_{ch} a teploty okolitého vzduchu T_v k tepelnému výkonu P rozptyľovaného chladičom do okolia v rovnovážnom stave:

$$R_{th} = \frac{T_{ch} - T_v}{P}$$

Rovnovážny stav je stav, kedy dodávaný výkon do chladiča je rovný tepelnému výkonu rozptyľovaného chladičom do okolia. Z toho tiež vyplýva, že pri konštantnej teplote okolitého vzduchu sa teplota chladiča v rovnovážnom stave nemení. Ak tepelný výkon dodávaný chladiču je generovaný ako Joule-Lenzovo teplo vznikajúce ako tepelná strata na odpore R výhrevného telesa, ktorým preteká jednosmerný prúd I a vzniká na ňom úbytok napätia U , potom tepelný výkon dodávaný chladiču je rovný elektrickému výkonu dodávaného do výhrevného telesa:

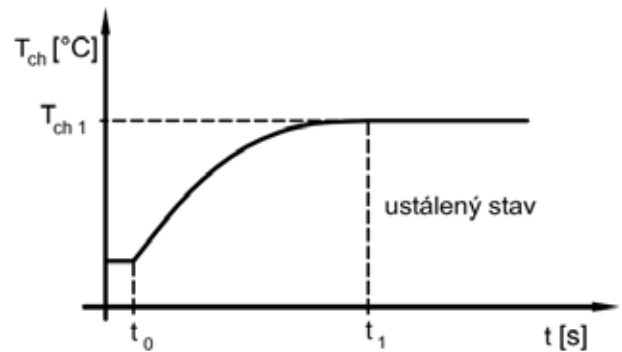
$$P = U \cdot I$$

Metóda merania

Do chladiča je pomocou elektrického výhrevného telesa počiňajúc časom t_0 dodávaný zvolený elektrický výkon, ktorý je so 100% účinnosťou transformovaný ako Joule-Lenzovo teplo na tepelný výkon. Teplota chladiča postupne narastá až dosiahne plató, ktoré signalizuje dosiahnutie rovnovážneho stavu.

Za tohto stavu je dodávaný elektrický výkon do výhrevného telesa rovný tepelnému výkonu, ktorý je rozptyľovaný chladičom do okolia. Za ustáleného stavu sú odmerané všetky veličiny potrebné pre výpočet tepelného odporu a následne je tepelný odpor chladiča vypočítaný podľa vzorca:

$$R_{th} = \frac{T_{ch} - T_v}{U \cdot I}$$



Grafické znázornenie priebehu nárastu teploty chladiča v čase

Pre jednoduchosť sa často v katalógoch s chladičmi udáva len jedna hodnota tepelného odporu R_{th} , zmeraná pri takom stratovom výkone, pri ktorom teplota chladiča za danej teploty okolitého vzduchu 20 °C dosiahne zvolenú hodnotu. Ak je chladič určený na chladenie bežných elektronických súčiastok, zvolenou hodnotou teploty býva najčastejšie teplota 75 °C.

Podmienky merania

- teplota chladiča 75 °C
- teplota okolitého vzduchu v rozsahu 20 až 22 °C
- tlak vzduchu v rozsahu 980 až 1020 hPa
- relatívna vlhkosť vzduchu 20 až 80 %
- normálne zloženie vzduchu (D 78%, O 21%, Ar 0,9%, CO₂ 0,03%)
- meranie R_{th} bolo uskutočnené bez umelej akcelerácie prúdenia vzduchu v okolí chladiča
- teplota vzduchu bola meraná vo vzdialenosti 50 mm pod spodným okrajom chladiča
- pri meraní tepelného odporu boli chladiče umiestnené tak aby bolo zabezpečené maximálne samovoľné prúdenie zohriateho vzduchu

Namerané výsledky tepelného odporu sú platné za spomenutých podmienok merania !!!

Tepelné odpory uvádzané v katalógu sú len informatívne.

*Merania tepelného odporu boli uskutočnené na zariadení vyvinutom v
Ústave merania SAV Bratislava.*

Measurement of heatsinks thermal resistance (R_{th})

Thermal resistance of electronic parts heatsinks represents important information for electronic equipment constructors that allows for optimum design of the part thermal loss outlet upon maintaining the maximum working temperature limit of the part and minimized heatsink dimensions. In case of simpler geometric dimensions, it is possible to determine the heatsink thermal resistance with accurate calculation but it is often required to measure thermal resistance in case of more complex shapes with complicated air flow around the heatsink.

Definition of thermal resistance

Thermal resistance of heatsink R_{th} is defined as a proportion of difference of maximum heatsink temperature T_{ch} and ambient temperature T_v to thermal output P dispersed by the heatsink to surrounding area in the state of equilibrium:

$$R_{th} = \frac{T_{ch} - T_v}{P}$$

The state of equilibrium is a condition when power input in the heatsink equals to thermal output dispersed by the heatsink in surrounding area. Accordingly, heatsink temperature in the equilibrium status doesn't change at constant ambient temperature.

If thermal output supplied to the heatsink is generated as the Joule-Lenz heat generated as a thermal loss of heating body resistance R that DC current passes through/ voltage drop U occurs thereon, then thermal output supplied to the heatsink equals to electric output supplied to the heating body:

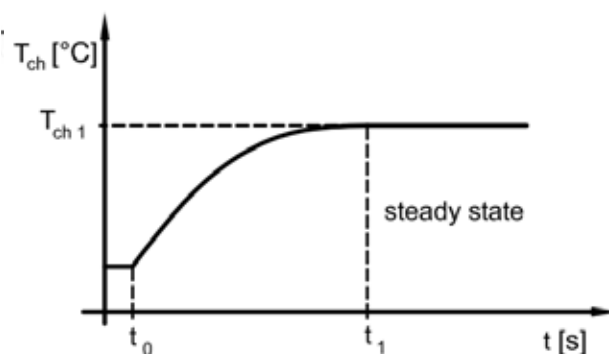
$$P = U \cdot I$$

Measurement method

Selected electric output is supplied to the heatsink beginning at the time t_0 , that is transformed as a Joule-Lenz heat to thermal output with 100% efficiency. The heatsink temperature gradually increases up to the level that signalizes reached equilibrium status..

In this condition, electric output supplied to heating body equals thermal output dispersed by the heatsink to the surrounding area. All parameters required to calculation of thermal resistance are measured at the status of equilibrium and subsequently, the heatsink thermal resistance is calculated according to the following formula:

$$R_{th} = \frac{T_{ch} - T_v}{U \cdot I}$$



Graphical illustration of heatsink temperature increase in real time.

For simplification purposes, the catalogue with heatsink often specify only one value of thermal resistance R_{th} , measured at such output loss when the heatsink temperature at ambient temperature 20 °C reaches the selected value. If a heatsink is intended to cool down common electronic parts, chosen temperature usually refers to 75 °C.

Measurement terms

- Heatsink temperature 75 °C
- Ambient temperature variance within 20 - 22 °C
- Air pressure within 980 - 1020 hPa
- Relative air humidity within 20 - 80 %
- Standard air composition (D 78%, O 21%, Ar 0,9%, CO₂ 0,03%)
- Measurement of R_{th} was conducted without artificial air flow acceleration around the heatsink
- Air temperature was measured at distance 50 mm under the bottom heatsink edge
- During thermal resistance measurement, the heatsinks were located so as maximum self-flowing of heated air was ensured.

Measured values of thermal resistance are valid upon the above-mentioned measurement conditions.

Thermal resistance values stated in the catalogue are only of information nature.

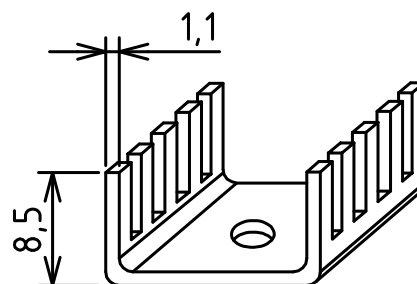
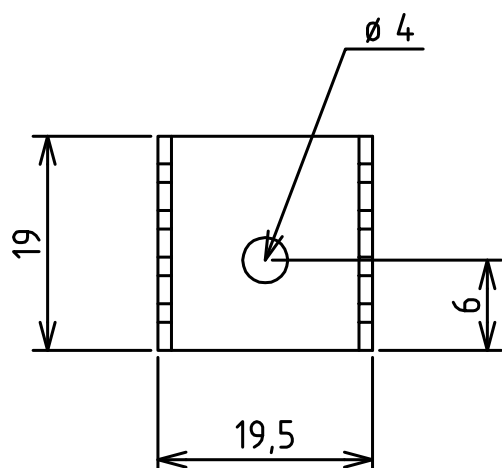
Currently, new measurements are conducted and the measurement values will be gradually completed.

Thermal resistance measurements were conducted with the equipment developed by the Measurement Institution, the Slovak Academy of Sciences in Bratislava

ST-TE19

Povrchová úprava / Surface treatment : čierny / black elox

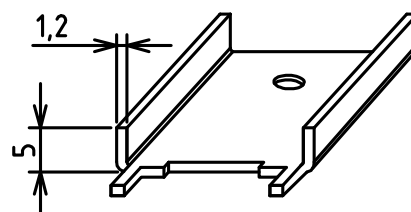
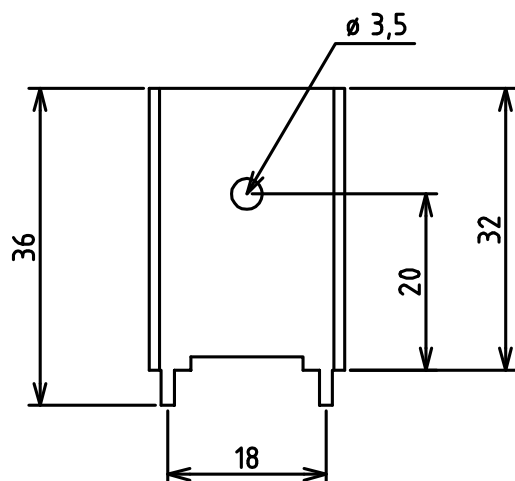
Rth: 55,0 °C/W



ST-T22

Povrchová úprava / Surface treatment : čierny / black elox

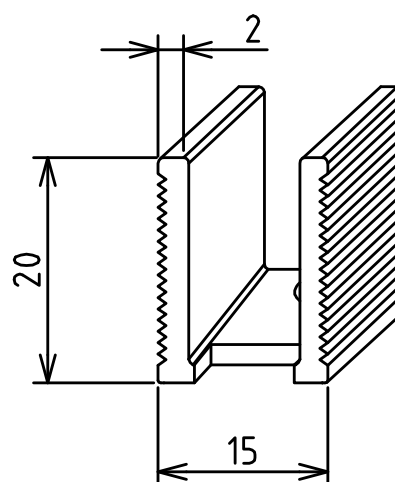
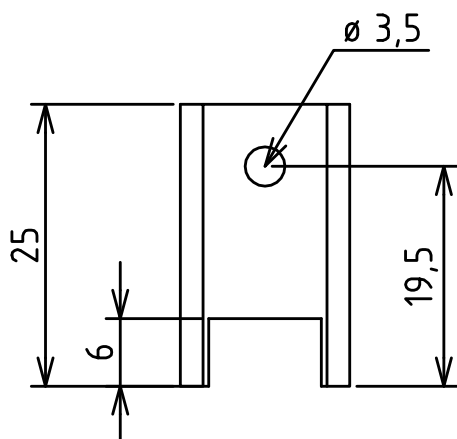
Rth: 22,0 °C/W



ST-T25A

Povrchová úprava / Surface treatment : čierny / black elox

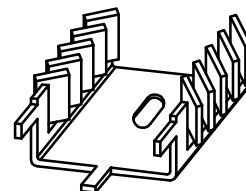
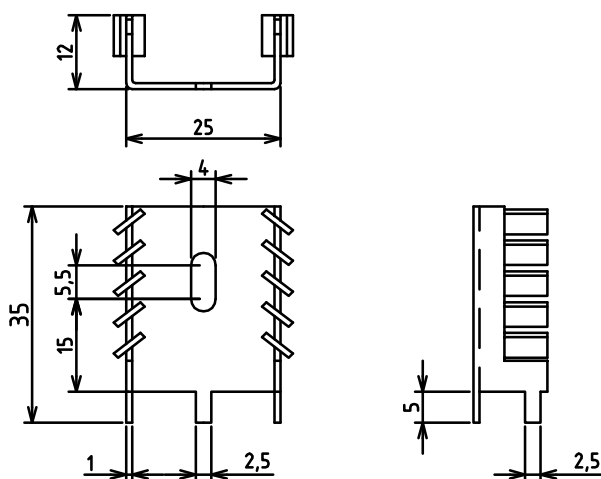
Rth: 18,0 °C/W



ST-TE28

Povrchová úprava / Surface treatment : čierny / black elox

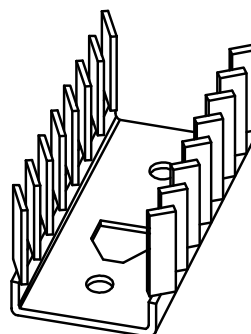
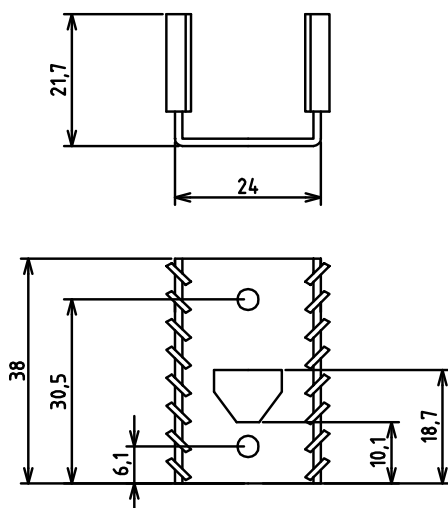
Rth: 14,0 °C/W



ST-TEA28

Povrchová úprava / Surface treatment : čierny / black elox

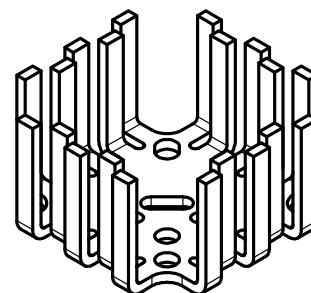
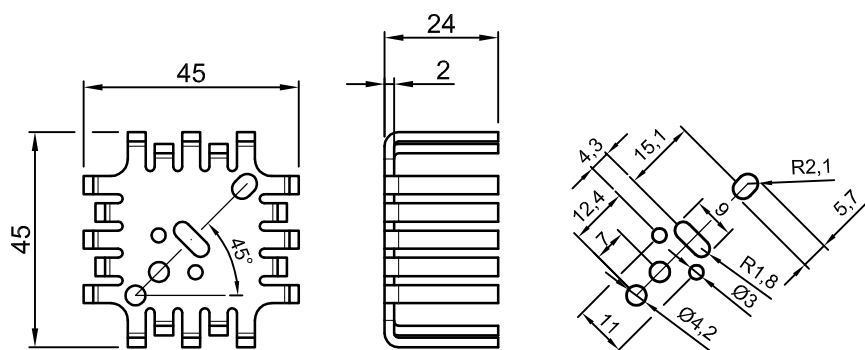
Rth: 15,0 °C/W



ST- 45MF

Povrchová úprava / Surface treatment : čierny / black elox

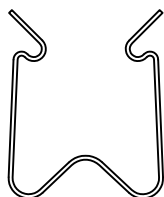
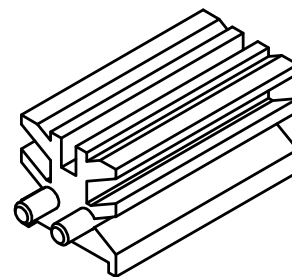
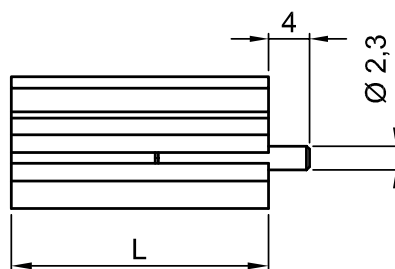
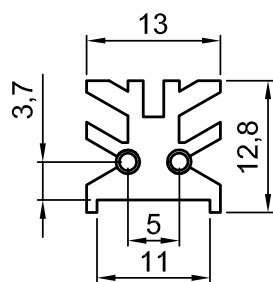
Rth: 7,7 °C/W



ST-T13/typ

Povrchová úprava / Surface treatment : čierny / black elox

Rth: 8,2 °C/W



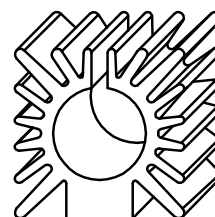
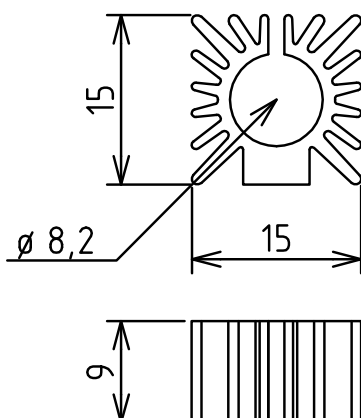
CLIP

typ	L
25N	25
35N	35

ST-T19

Povrchová úprava / Surface treatment : čierny / black elox

Rth: 55,0 °C/W



Povrchová úprava / Surface treatment : čierny / black elox

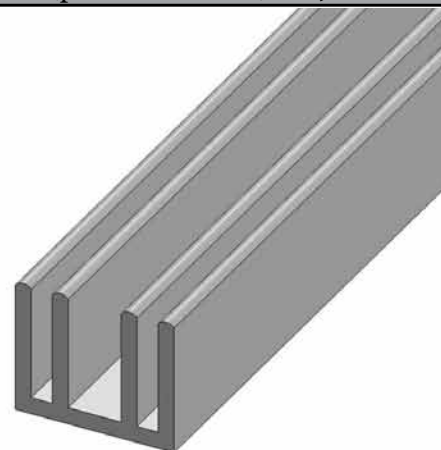
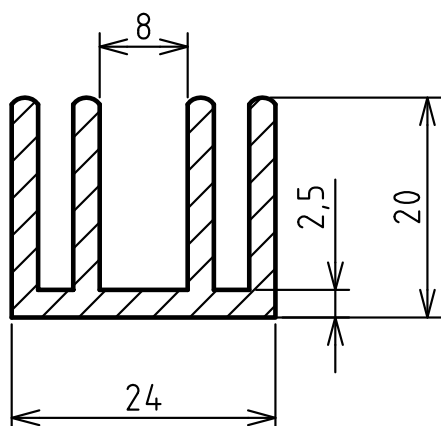
Rth: °C/W

HY 25417

hmotnosť / weight: 0,54 kg/m

obvod / perimeter: 190 mm

Rth (pre/for 100 mm): 4,8 °C/W

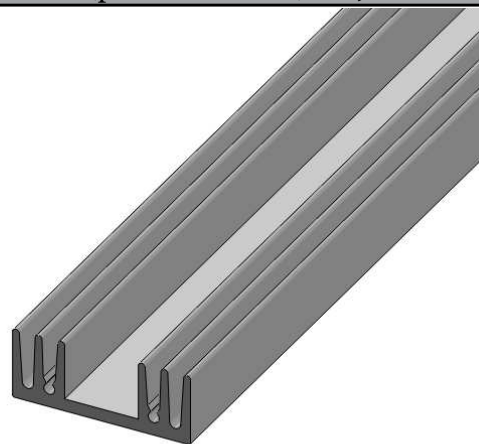
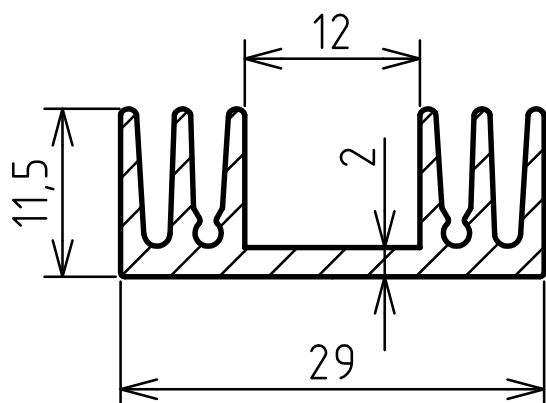


ZH 9025

hmotnosť / weight: 0,38 kg/m

obvod / perimeter: 167 mm

Rth (pre/for 100 mm): 6,3 °C/W



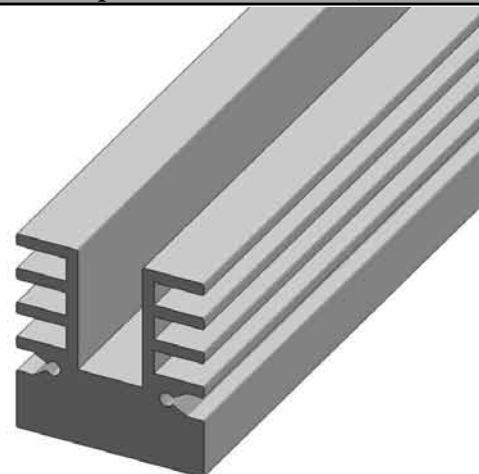
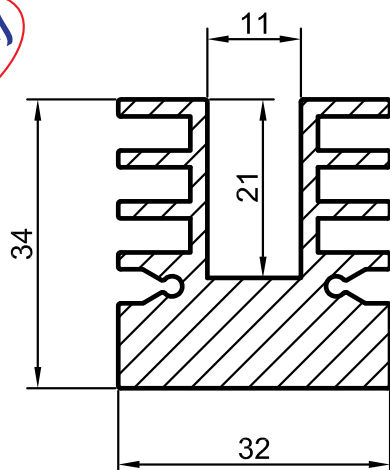
ZH 7503

hmotnosť / weight: 1,65 kg/m

obvod / perimeter: 300 mm

Rth (pre/for 100 mm): 4,0 °C/W

Dopredaj
Bargain Sale

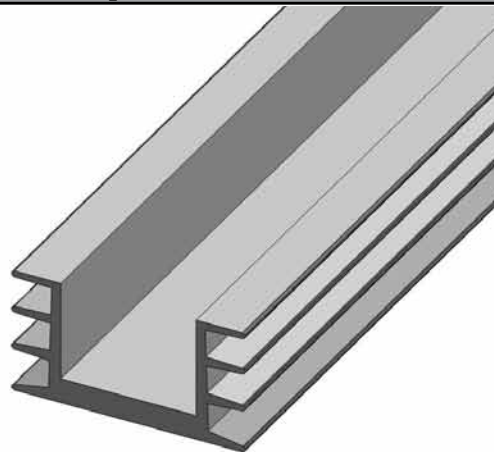
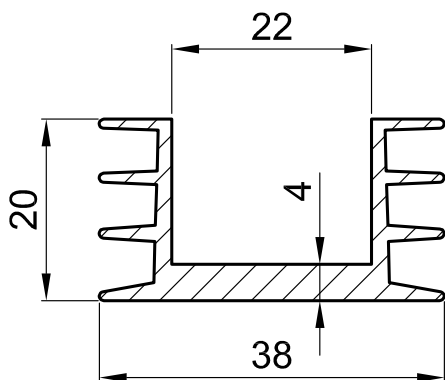


T 38

hmotnosť / weight: 0,62 kg/m

obvod / perimeter: 216 mm

Rth (pre/for 100 mm): 4,6 °C/W

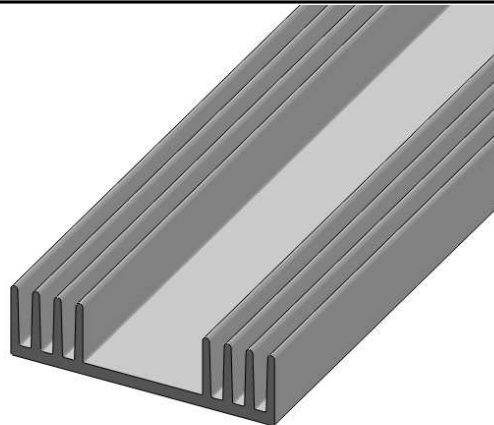
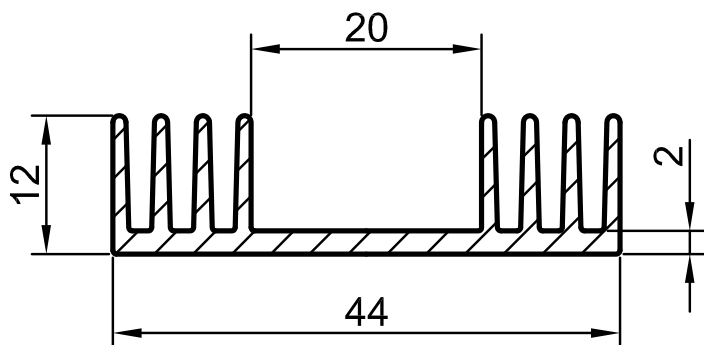


ZH 8662

hmotnosť / weight: 0,52 kg/m

obvod / perimeter: 243 mm

Rth (pre/for 100 mm): 5,0 °C/W

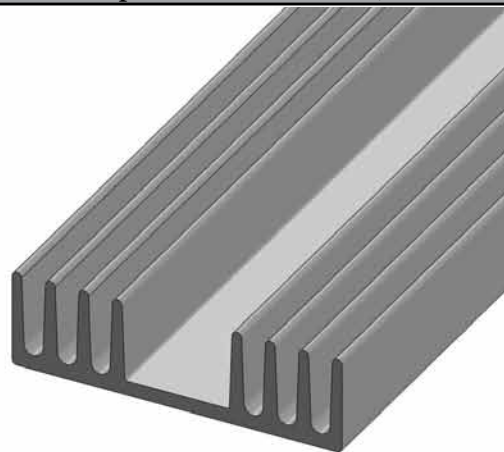
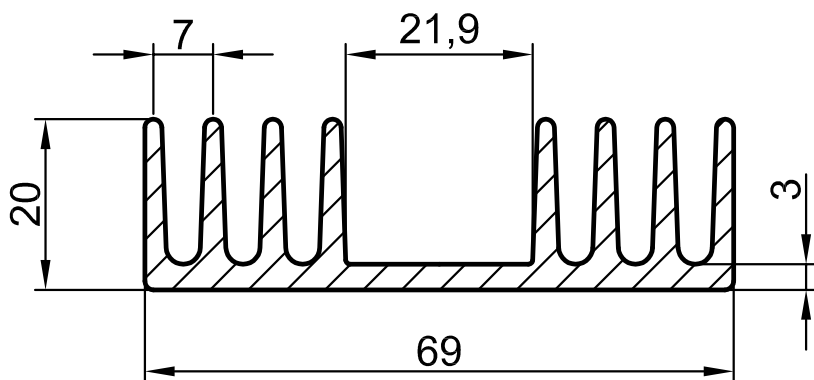


ZH 1136

hmotnosť / weight: 1,49 kg/m

obvod / perimeter: 389 mm

Rth (pre/for 100 mm): 3,9 °C/W

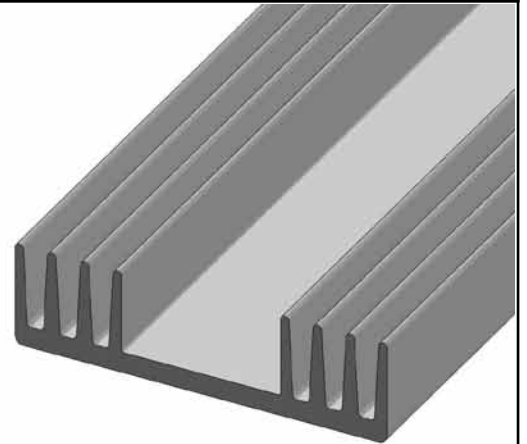
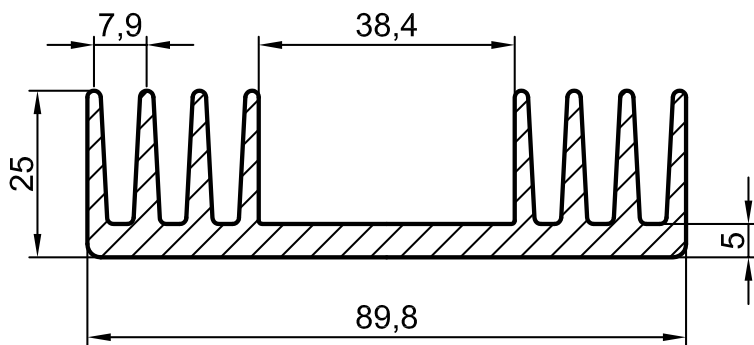


ZH 1910

hmotnosť / weight: 2,38 kg/m

obvod / perimeter: 494 mm

Rth (pre/for 100 mm): 3,2 °C/W

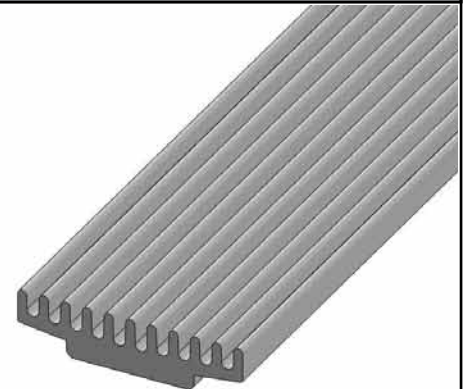
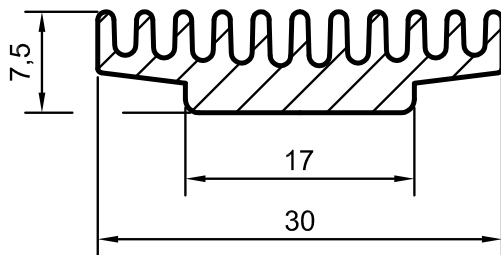


ZH 6681

hmotnosť / weight: 0,36 kg/m

obvod / perimeter: 129 mm

Rth (pre/for 100 mm): -- °C/W

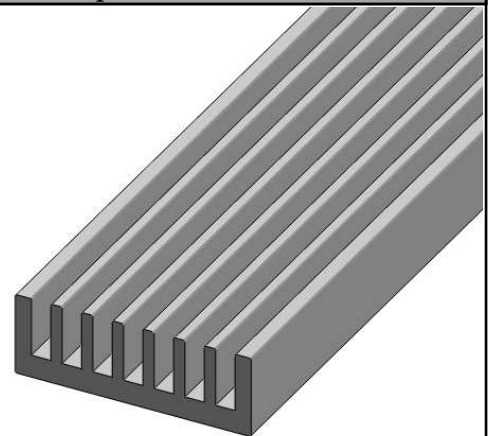
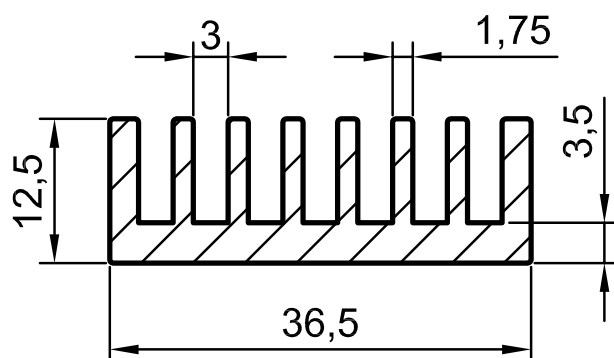


ZH 8889

hmotnosť / weight: 0,72 kg/m

obvod / perimeter: 222 mm

Rth (pre/for 100 mm): -- °C/W

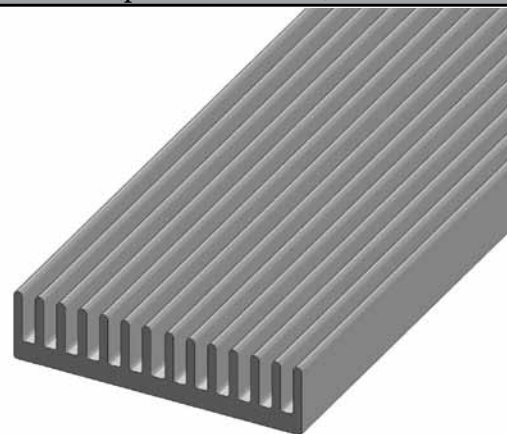
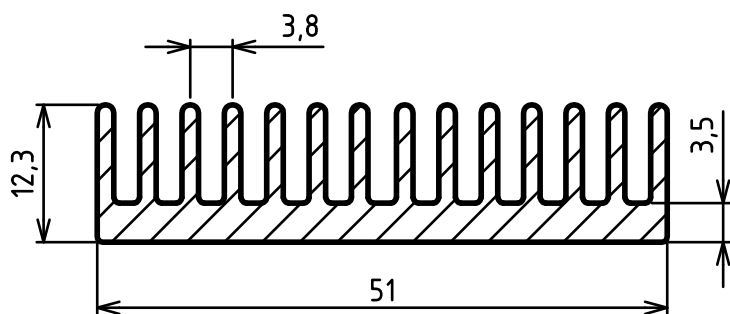


ZH 9152

hmotnosť / weight: 0,98 kg/m

obvod / perimeter: 340 mm

Rth (pre/for 100 mm): -- °C/W

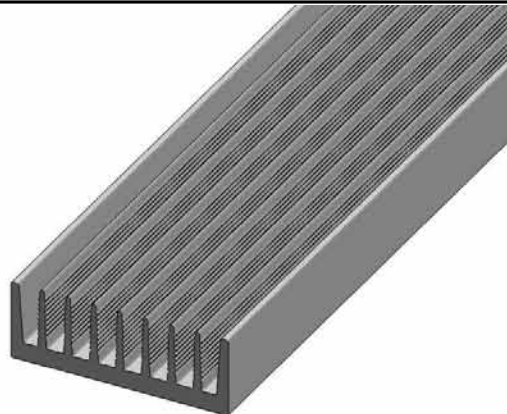
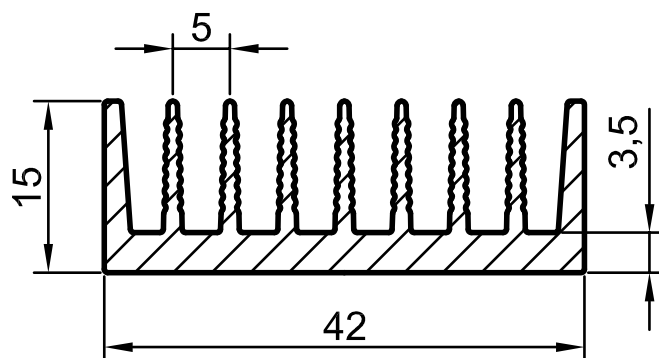


ZH 8624

hmotnosť / weight: 0,79 kg/m

obvod / perimeter: 298 mm

Rth (pre/for 100 mm): 4,2 °C/W

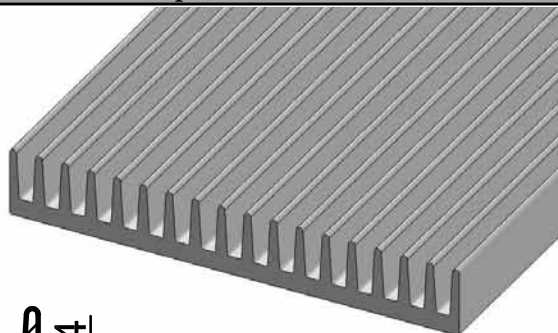
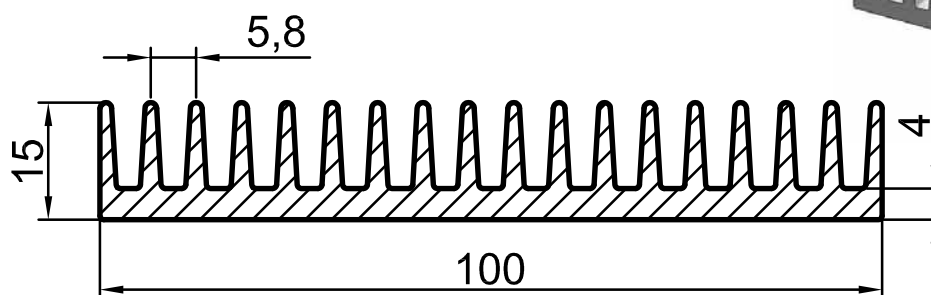


ZH 8501

hmotnosť / weight: 2,17 kg/m

obvod / perimeter: 566 mm

Rth (pre/for 100 mm): 3,16 °C/W

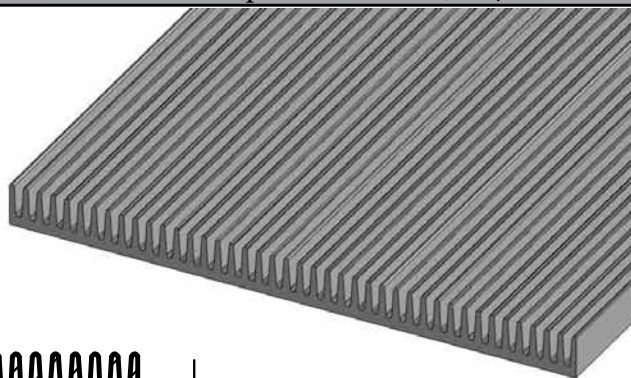
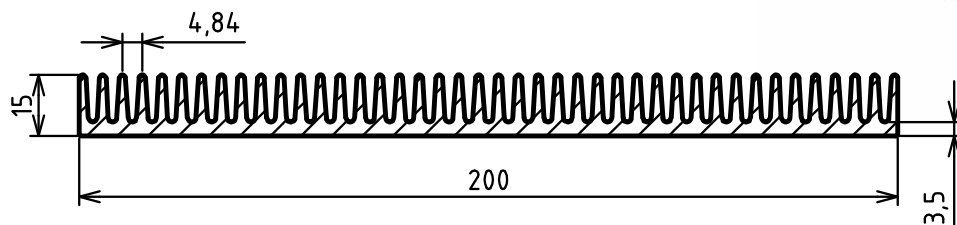


KK 200

hmotnosť / weight: 4,73 kg/m

obvod / perimeter: 1 265 mm

Rth (pre/for 150 mm): 0,85 °C/W

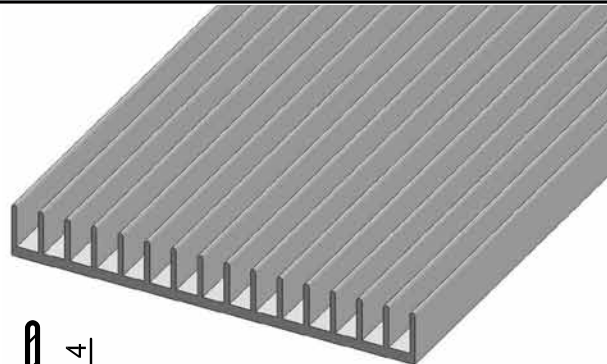
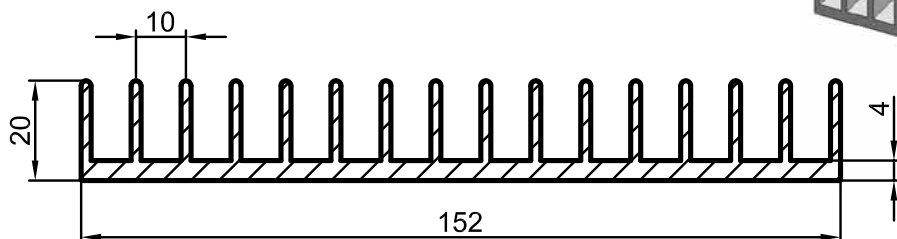


ZH 6465

hmotnosť / weight: 3,01 kg/m

obvod / perimeter: 809 mm

Rth (pre/for 100 mm): 1,20 °C/W

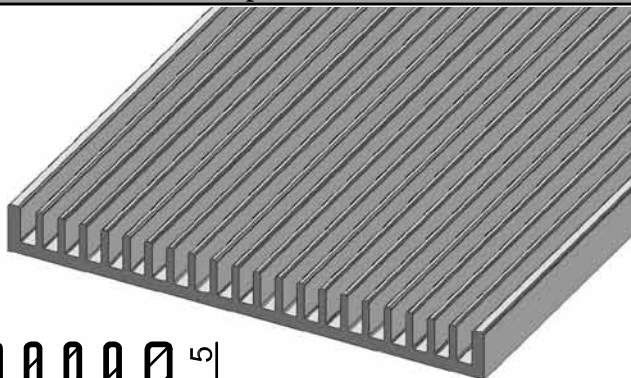
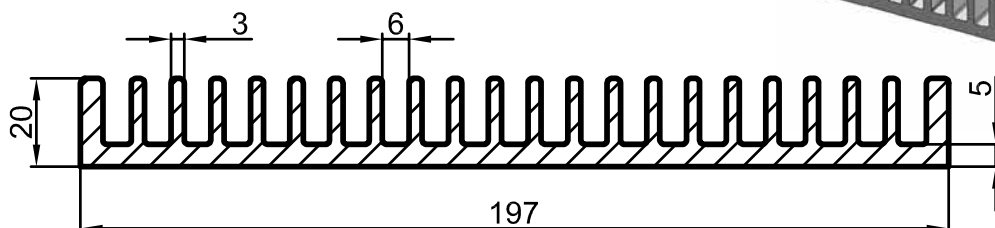


K 197

hmotnosť / weight: 5,80 kg/m

obvod / perimeter: 1 027 mm

Rth (pre/for 150 mm): 0,75 °C/W



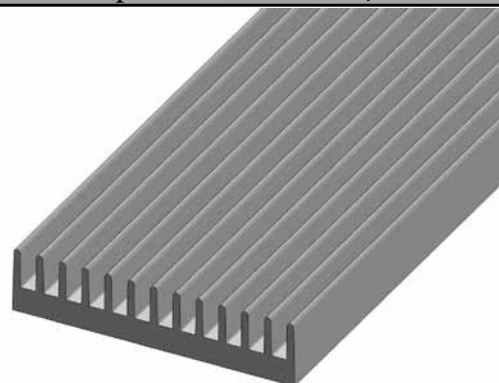
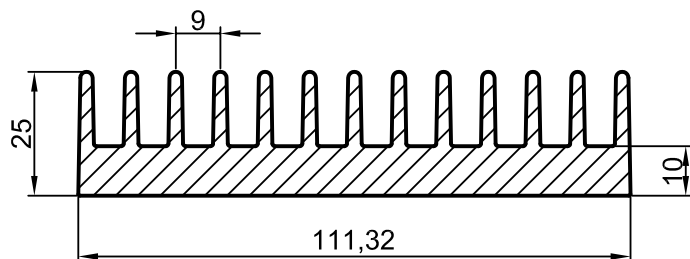
* Profily môžu mať iný vzhľad rebier, rozostupy rebier, prípadne hrúbku základne. Informujte sa prosím o aktuálnom stave pred objednaním.
The profiles can have a different visage of ribs, spacing of the ribs or thickness of the base. Please, inquire about the current state before ordering.

ZH 0610

hmotnosť / weight: 4,43 kg/m

obvod / perimeter: 607 mm

Rth (pre/for 100 mm): 1,15 °C/W

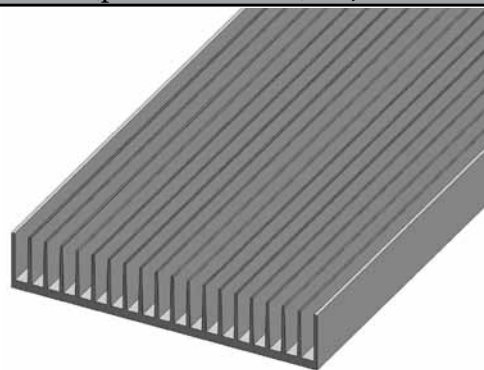
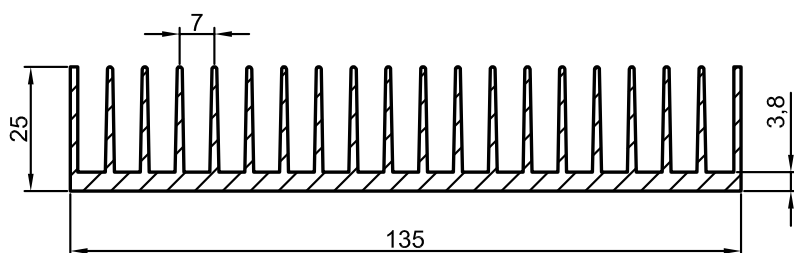


K 135

hmotnosť / weight: 3,10 kg/m

obvod / perimeter: 1 104 mm

Rth (pre/for 100 mm): 1,15 °C/W

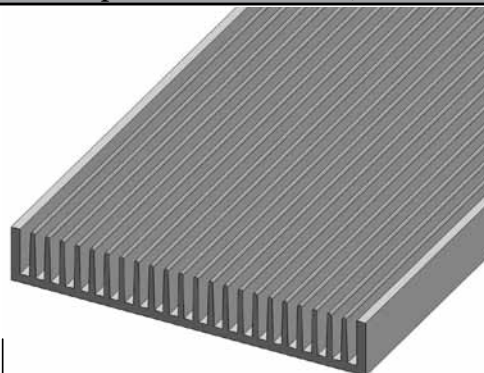
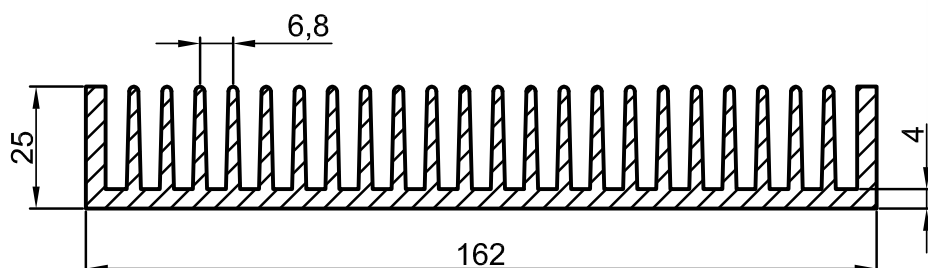


K 163

hmotnosť / weight: 5,20 kg/m

obvod / perimeter: 1 300 mm

Rth (pre/for 150 mm): 0,85 °C/W

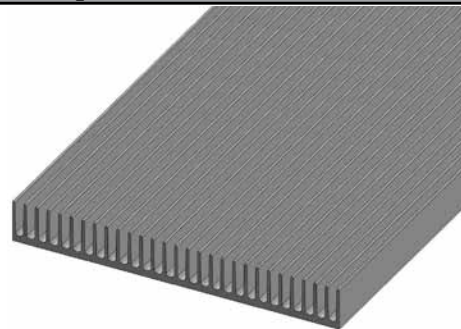
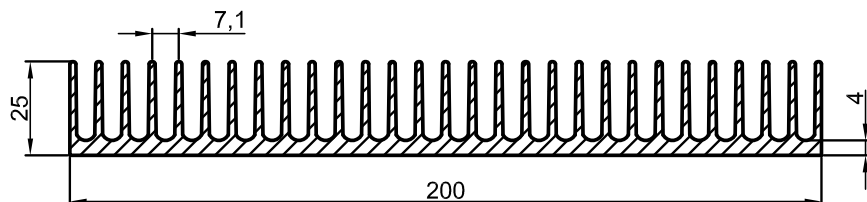


KEAH 200

hmotnosť / weight: 5,50 kg/m

obvod / perimeter: 1 542 mm

R_{th} (pre/for 150 mm): 0,64 °C/W

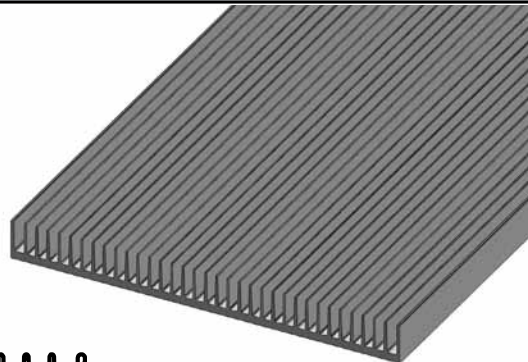
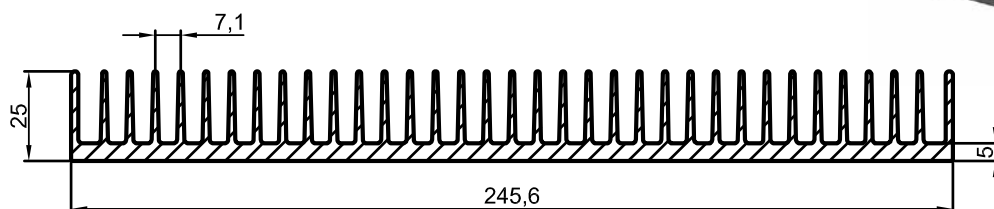


K 245

hmotnosť / weight: 6,60 kg/m

obvod / perimeter: 1 831 mm

R_{th} (pre/for 150 mm): 0,43 °C/W

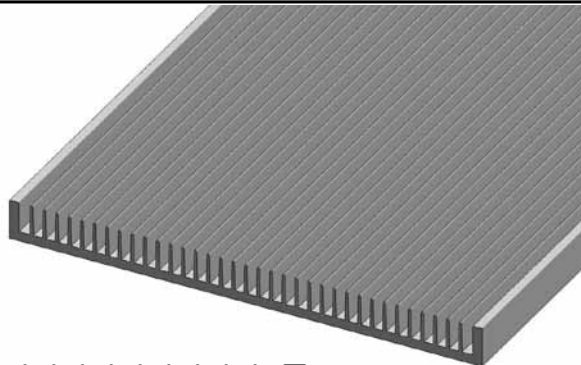
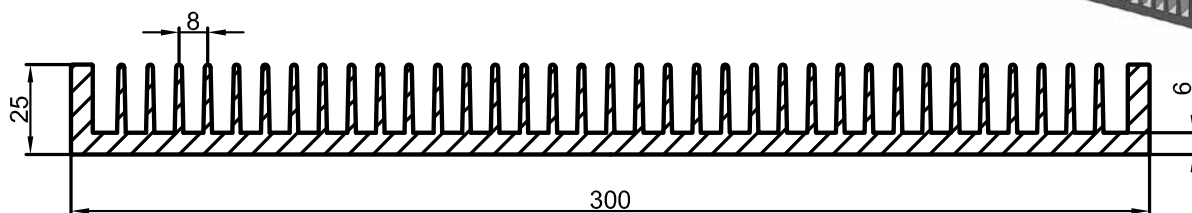


KEA 300

hmotnosť / weight: 9,10 kg/m

obvod / perimeter: 1 968 mm

R_{th} (pre/for 150 mm): 0,44 °C/W

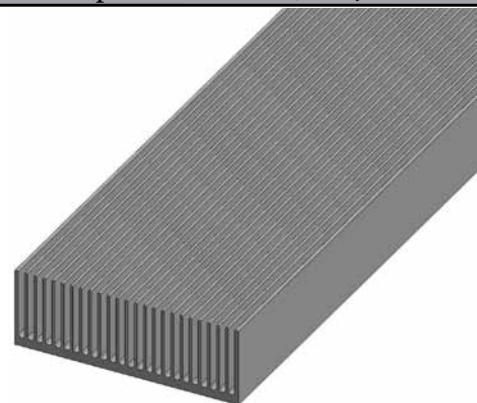
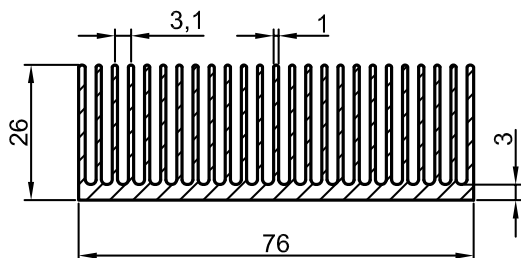


K 76

hmotnosť / weight: 2,23 kg/m

obvod / perimeter: 1 277 mm

Rth (pre/for 100 mm): 2,2 °C/W

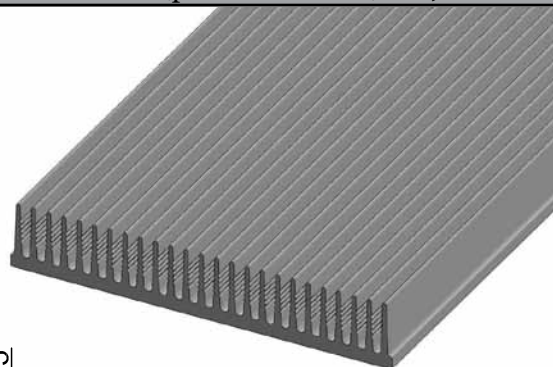
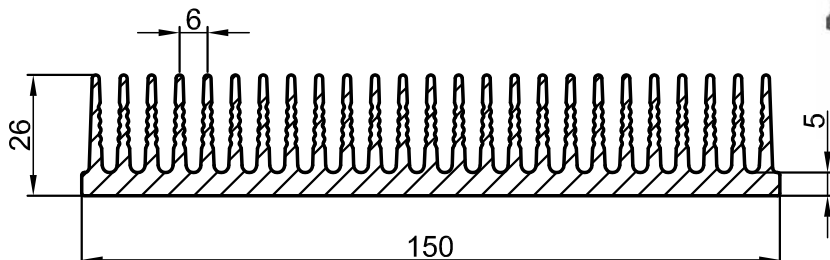


ZH 8001

hmotnosť / weight: 4,96 kg/m

obvod / perimeter: 1 328 mm

Rth (pre/for 100 mm): 1,3 °C/W

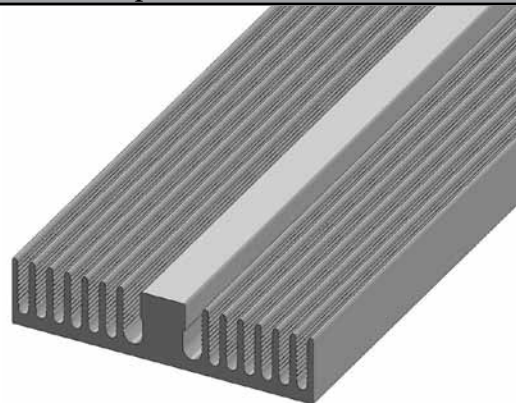
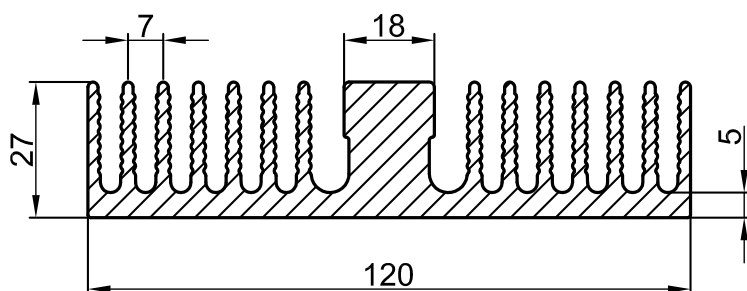


ZH 7771

hmotnosť / weight: 4,81 kg/m

obvod / perimeter: 953 mm

Rth (pre/for 100 mm): -- °C/W



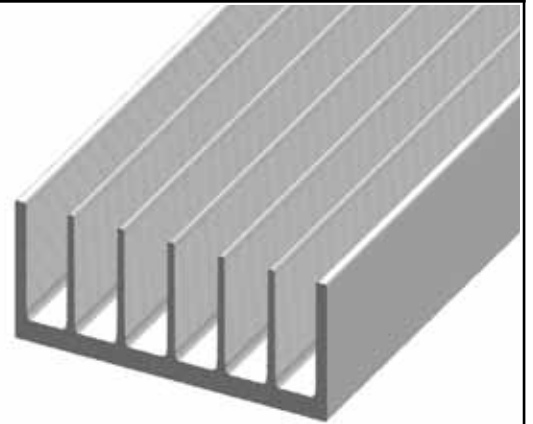
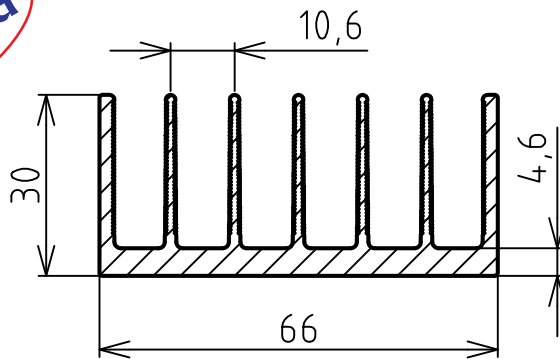
ZH 9250

hmotnosť / weight: 1,70 kg/m

obvod / perimeter: 629 mm

Rth (pre/for 100 mm): -- °C/W

Novinka
NEW



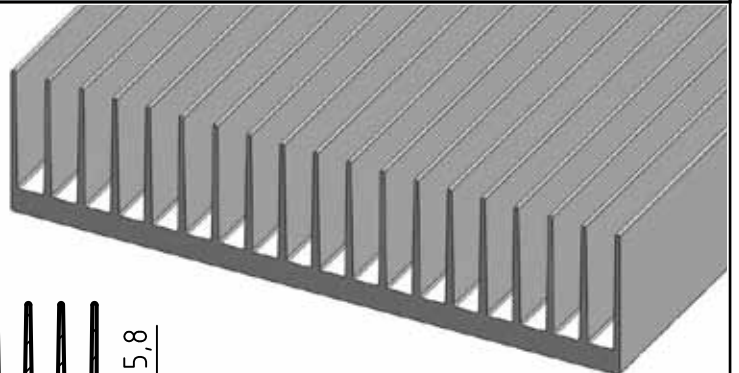
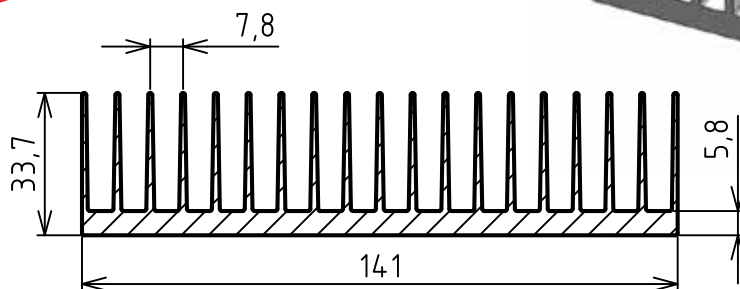
ZH 9481

hmotnosť / weight: 4,17 kg/m

obvod / perimeter: 1 324 mm

Rth (pre/for 100 mm): -- °C/W

Novinka
NEW



hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

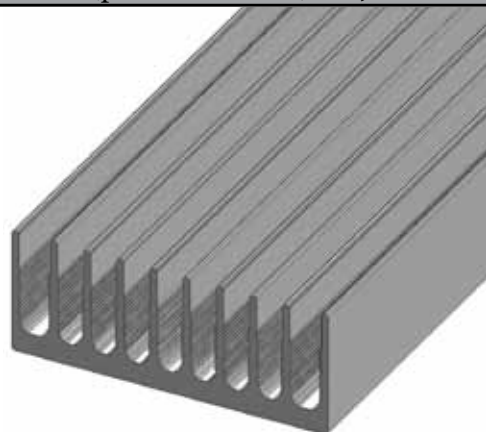
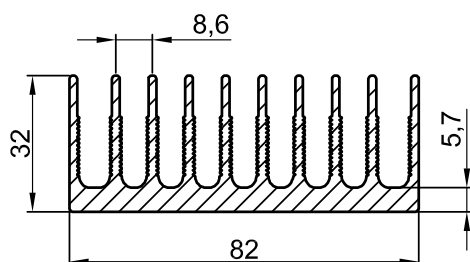
°C/W

KE 82

hmotnosť / weight: 2,87 kg/m

obvod / perimeter: 806 mm

Rth (pre/for 100 mm): 1,5 °C/W

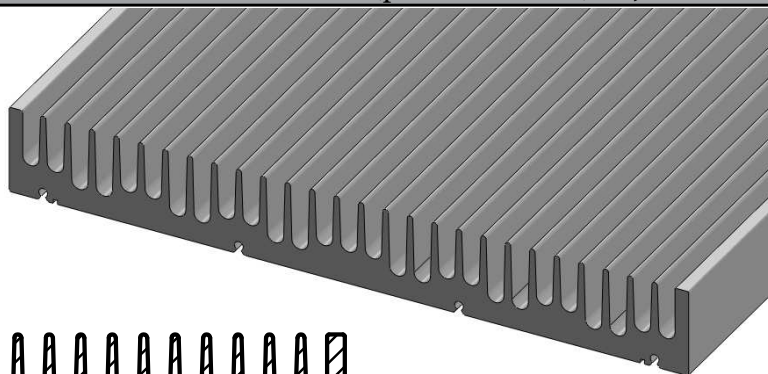
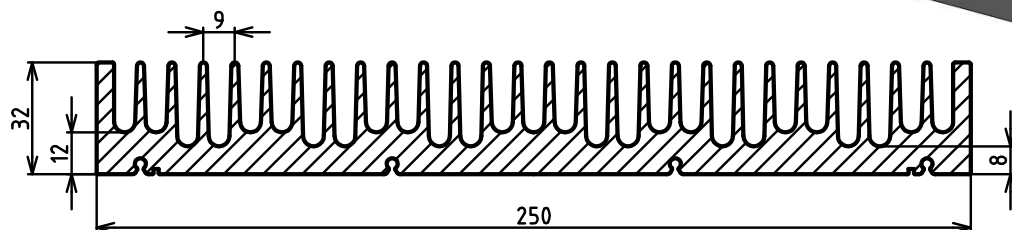


ZH 4185

hmotnosť / weight: 11,53 kg/m

obvod / perimeter: 1 660 mm

Rth (pre/for 100 mm): 0,58 °C/W

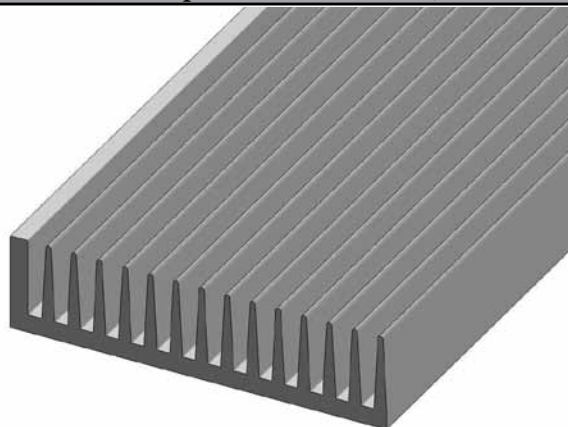
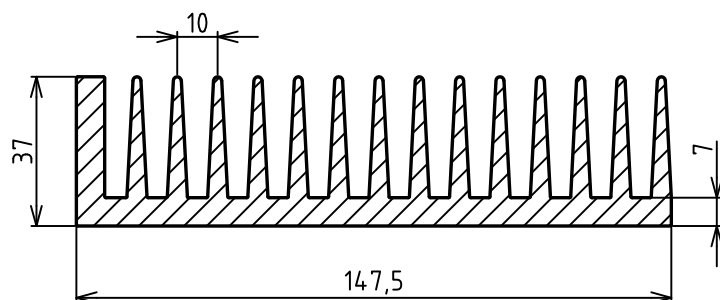


ZH 5073

hmotnosť / weight: 7,28 kg/m

obvod / perimeter: 1 152 mm

Rth (pre/for 100 mm): 0,65 °C/W

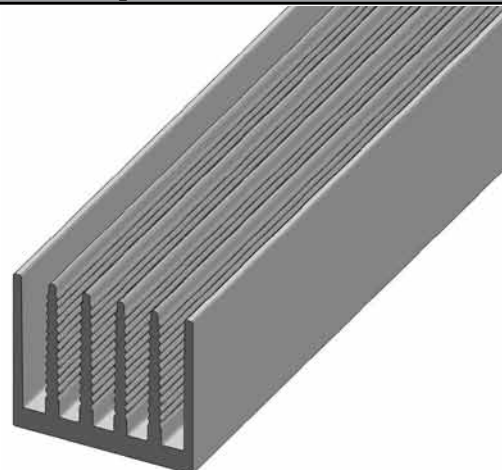
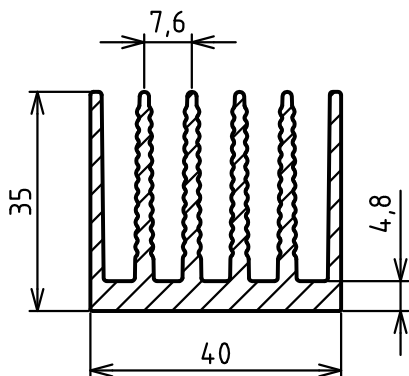


ZH 7485

hmotnosť / weight: 1,59 kg/m

obvod / perimeter: 458 mm

Rth (pre/for 100 mm): 2,79 °C/W

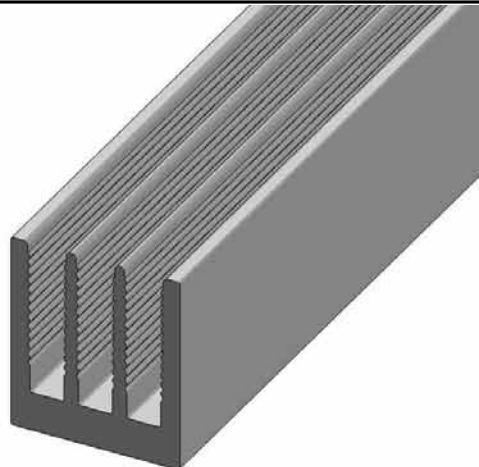
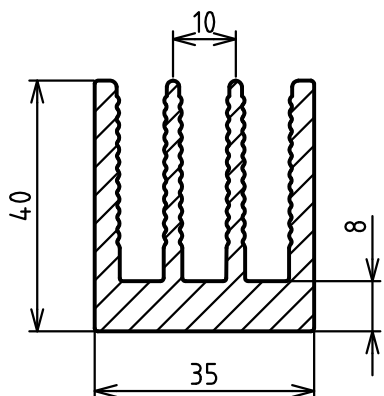


ZH 7770

hmotnosť / weight: 1,85 kg/m

obvod / perimeter: 352 mm

Rth (pre/for 100 mm): 3,0 °C/W



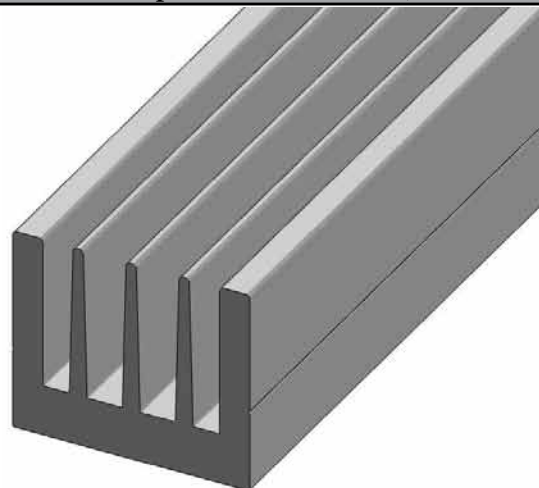
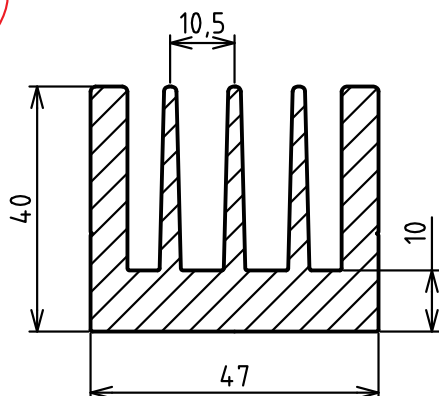
ZH 6789

hmotnosť / weight: 2,91 kg/m

obvod / perimeter: 405 mm

Rth (pre/for 100 mm): 2,93 °C/W

Dopredaj
Bargain Sale

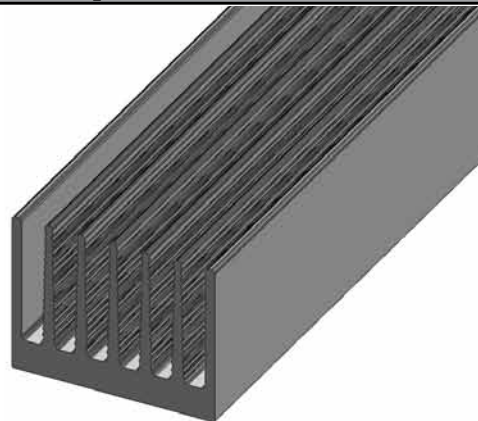
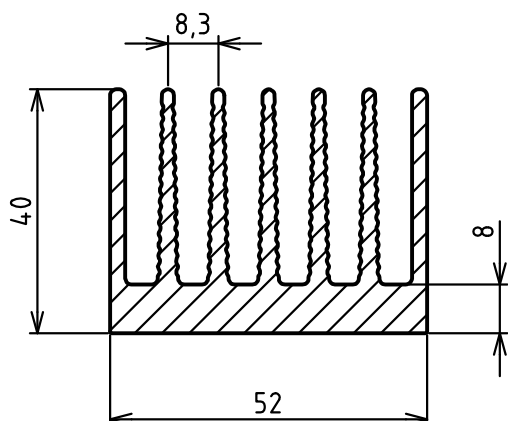


HY 25345

hmotnosť / weight: 2,50 kg/m

obvod / perimeter: 571 mm

Rth (pre/for 100 mm): 2,0 °C/W

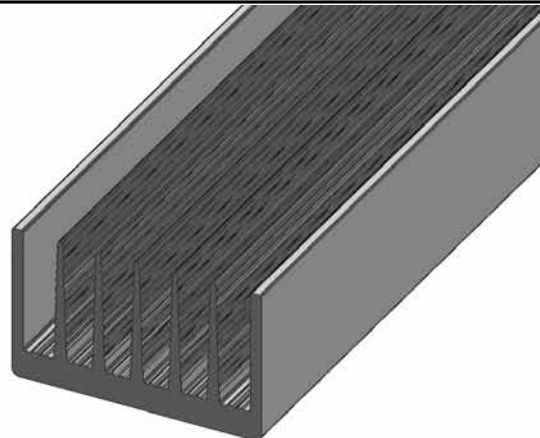
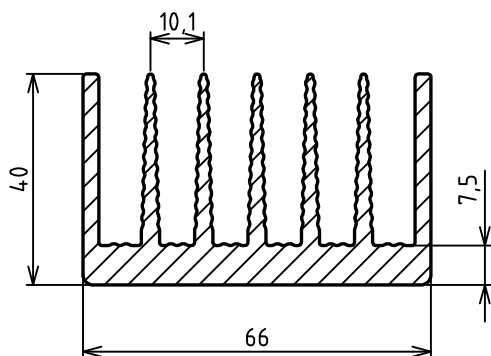


K 66

hmotnosť / weight: 2,95 kg/m

obvod / perimeter: 597 mm

Rth (pre/for 100 mm): 1,7 °C/W

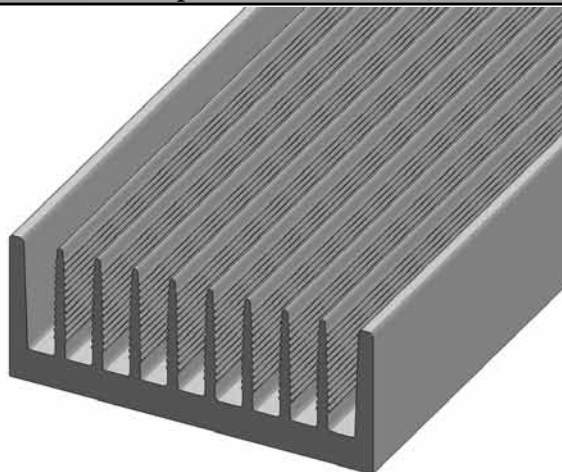
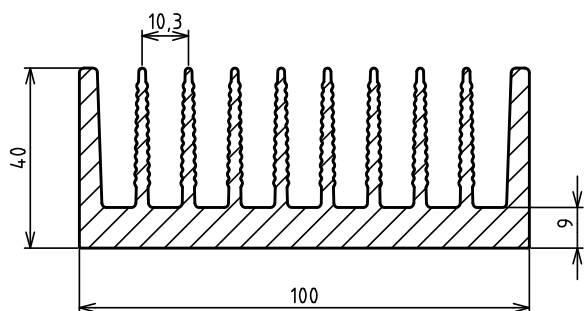


ZH 7484

hmotnosť / weight: 4,86 kg/m

obvod / perimeter: 846 mm

Rth (pre/for 100 mm): 1,18 °C/W

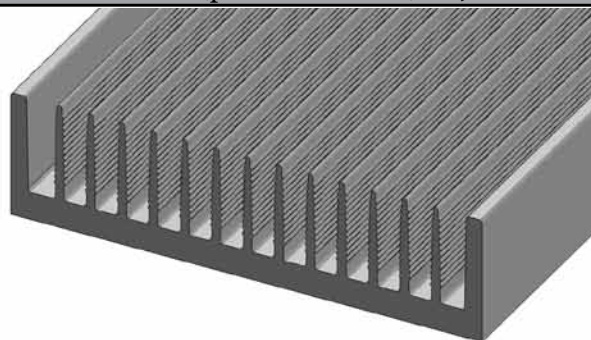
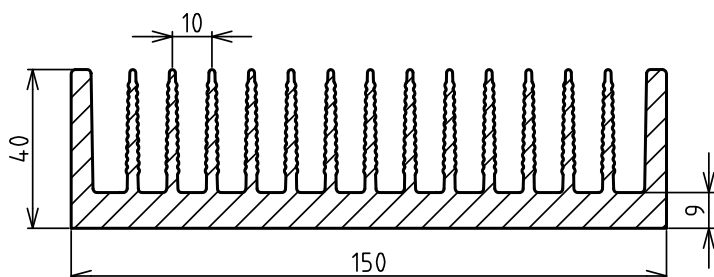


IT 5498

hmotnosť / weight: 7,85 kg/m

obvod / perimeter: 1 261 mm

Rth (pre/for 150 mm): 0,62 °C/W

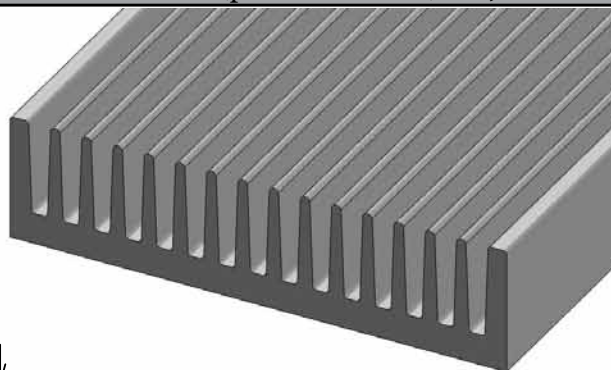
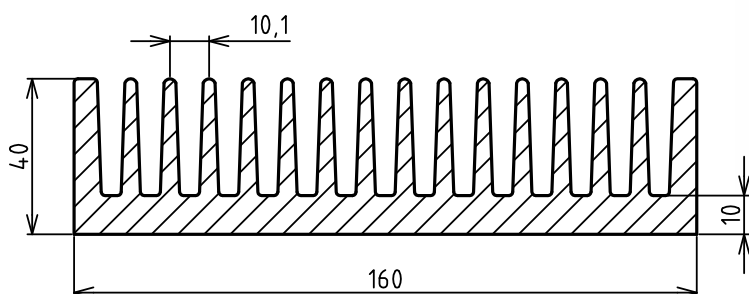


IT 5303

hmotnosť / weight: 9,32 kg/m

obvod / perimeter: 1 250 mm

Rth (pre/for 100 mm): 0,9 °C/W

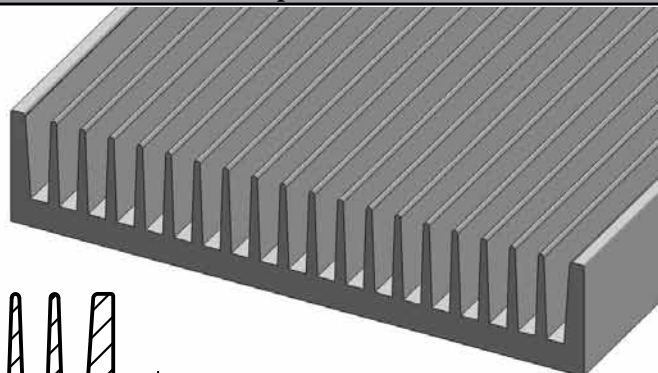
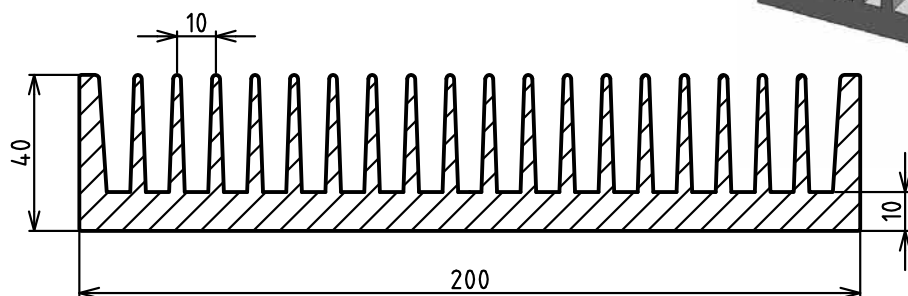


K 200

hmotnosť / weight: 10,68 kg/m

obvod / perimeter: 1 565 mm

Rth (pre/for 150 mm): 0,52 °C/W

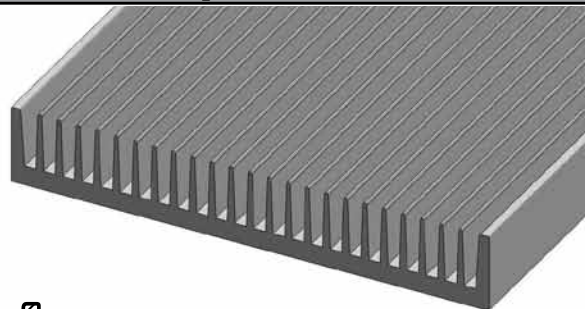
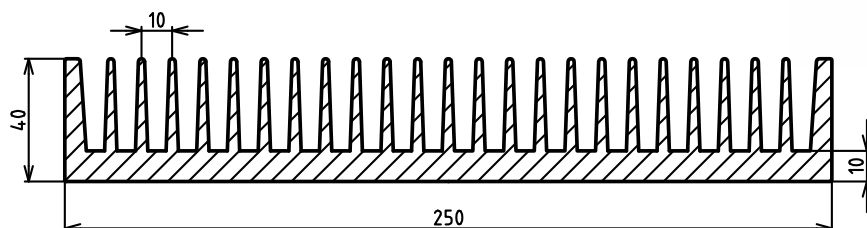


K 250

hmotnosť / weight: 13,23 kg/m

obvod / perimeter: 1 951 mm

Rth (pre/for 150 mm): 0,41 °C/W

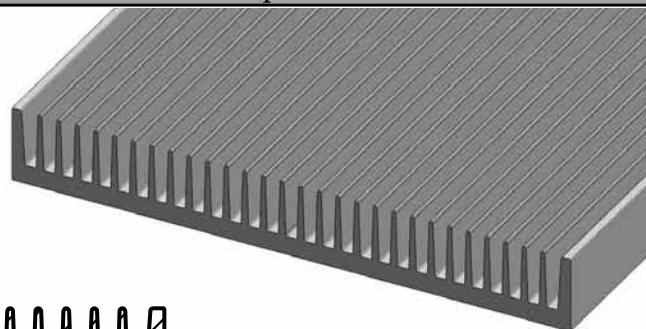
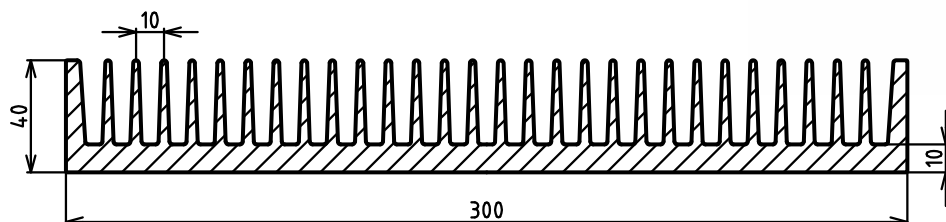


K 300

hmotnosť / weight: 15,73 kg/m

obvod / perimeter: 2 315 mm

Rth (pre/for 150 mm): 0,32 °C/W



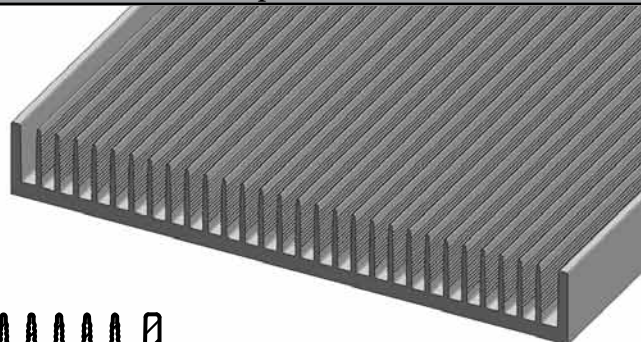
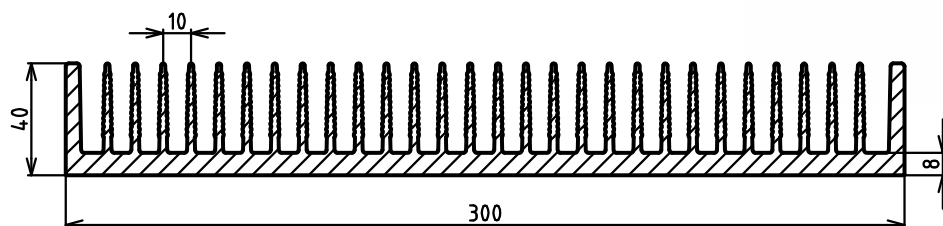
IT 4377

hmotnosť / weight: 14,60 kg/m

obvod / perimeter: 2 560 mm

Rth (pre/for 100 mm): -- °C/W

Dopredaj
Bargain Sale

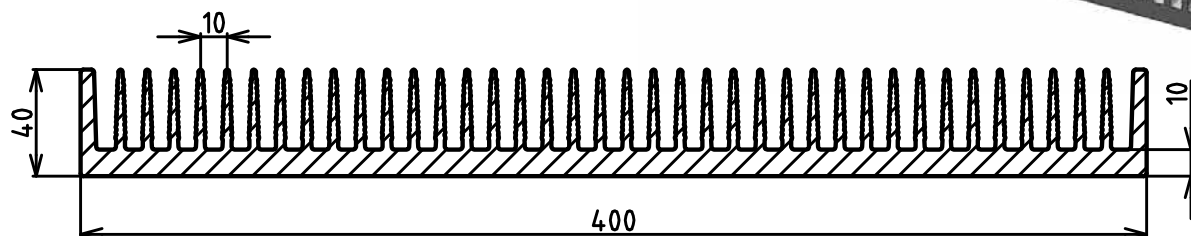
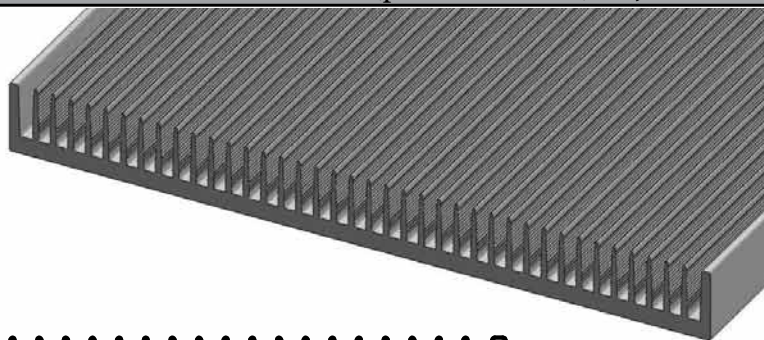


K 400

hmotnosť / weight: 21,03 kg/m

obvod / perimeter: 3 108 mm

Rth (pre/for 150 mm): 0,25 °C/W



hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

°C/W

hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

°C/W

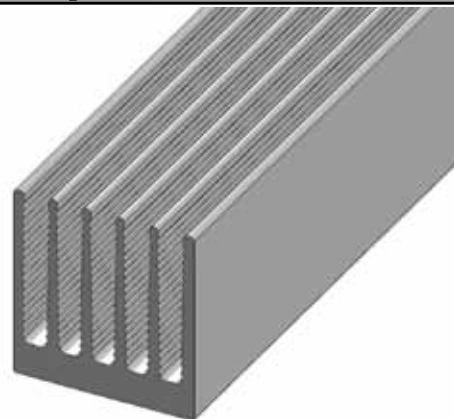
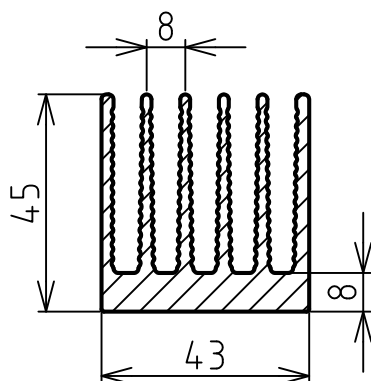
ZH 9238

hmotnosť / weight: 2,34 kg/m

obvod / perimeter: 566 mm

Rth (pre/for 100 mm): -- °C/W

Novinka
NEW

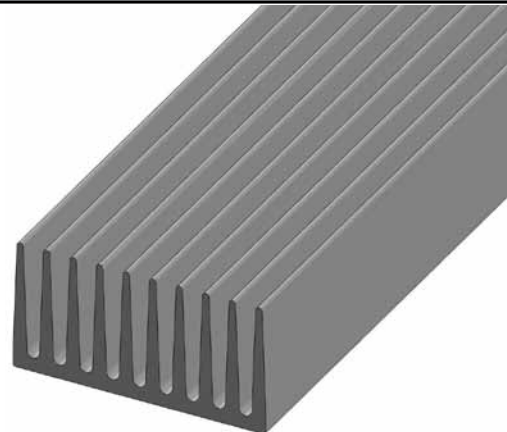
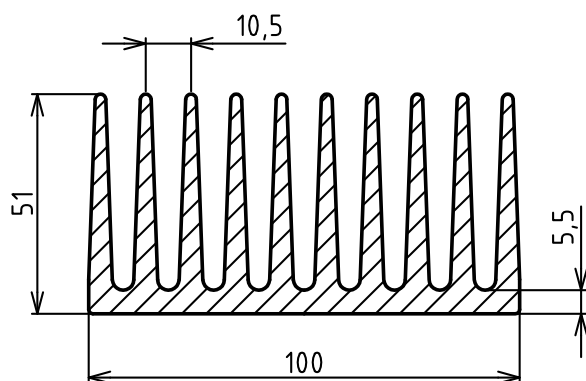


ZH 2533

hmotnosť / weight: 6,52 kg/m

obvod / perimeter: 1 060 mm

Rth (pre/for 100 mm): 1,4 °C/W

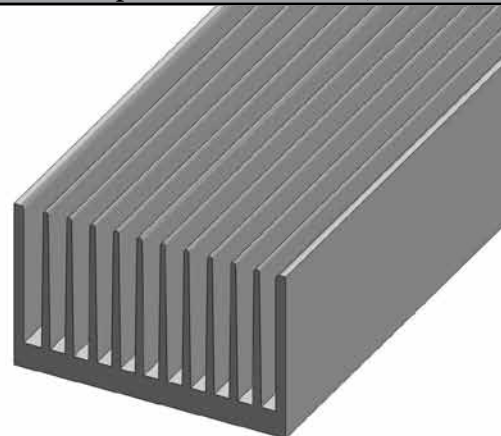
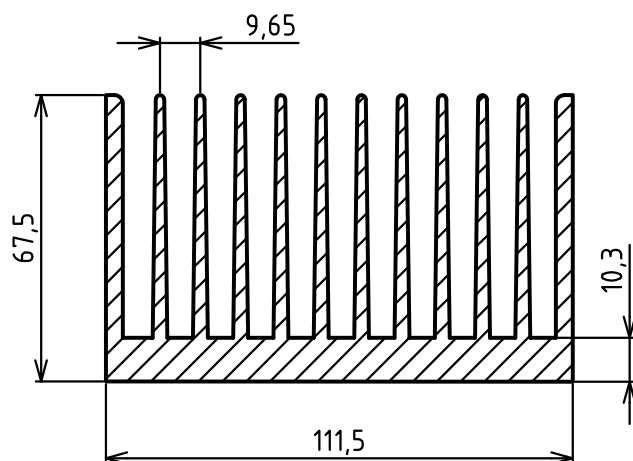


K 112

hmotnosť / weight: 8,70 kg/m

obvod / perimeter: 1 588 mm

Rth (pre/for 100 mm): 0,90 °C/W

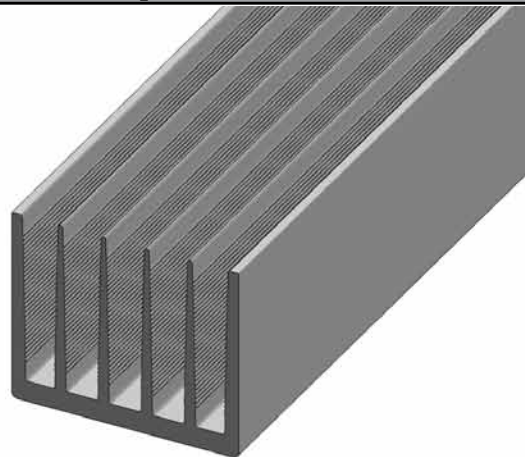
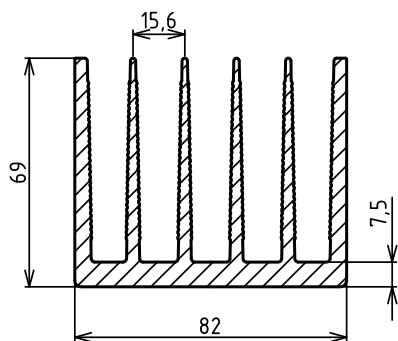


ZH 8708

hmotnosť / weight: 5,20 kg/m

obvod / perimeter: 937 mm

Rth (pre/for 100 mm): 1,1 °C/W

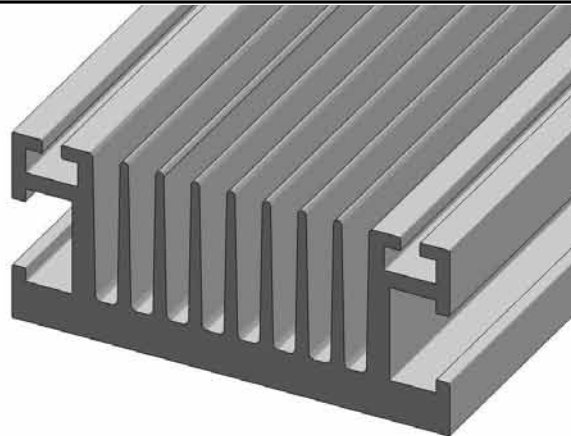
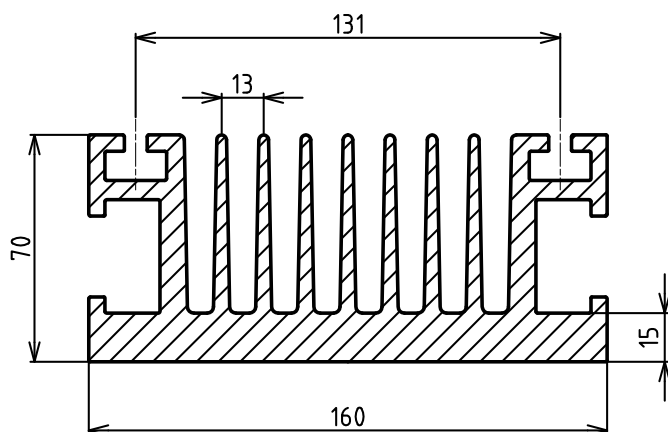


ZH 3197

hmotnosť / weight: 14,59 kg/m

obvod / perimeter: 1 526 mm

Rth (pre/for 100 mm): -- °C/W

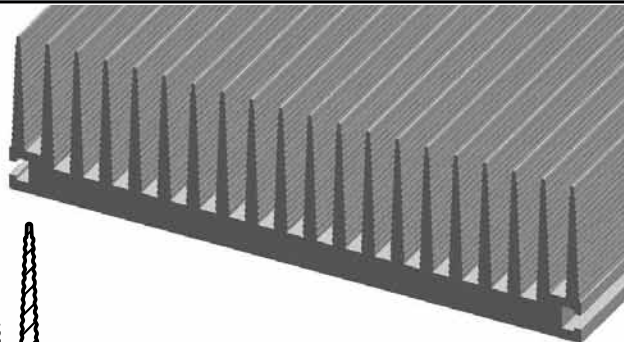
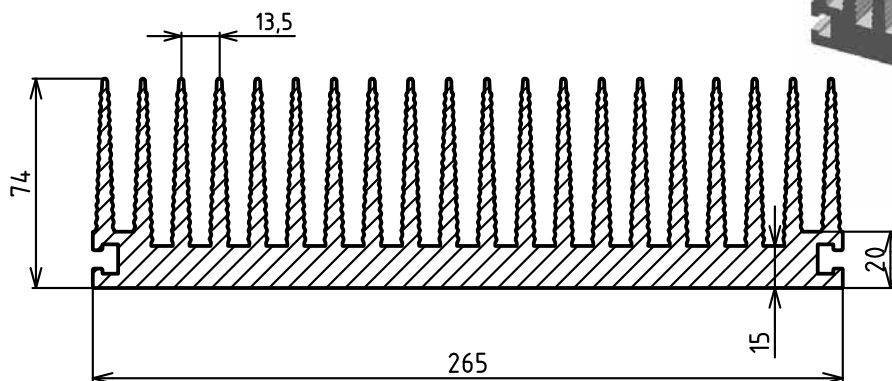


IT 0265

hmotnosť / weight: 24,13 kg/m

obvod / perimeter: 3 006 mm

Rth (pre/for 150 mm): 0,45 °C/W



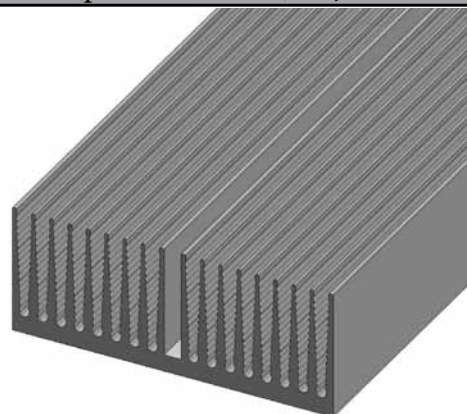
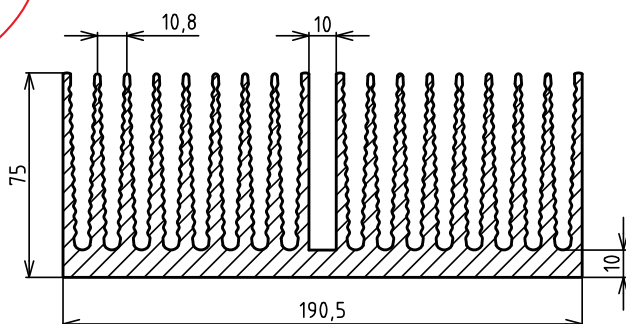
KE 190

hmotnosť / weight: 16,50 kg/m

obvod / perimeter: 2 887 mm

Rth (pre/for 150 mm): 0,36 °C/W

Dopredaj
Bargain Sale

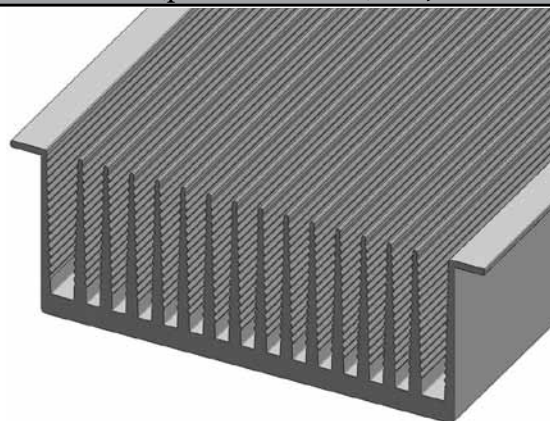
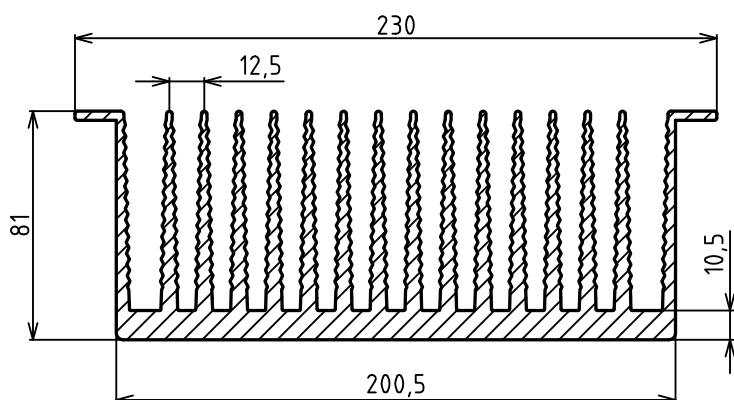


K 230

hmotnosť / weight: 17,50 kg/m

obvod / perimeter: 2 895 mm

Rth (pre/for 150 mm): 0,3 °C/W

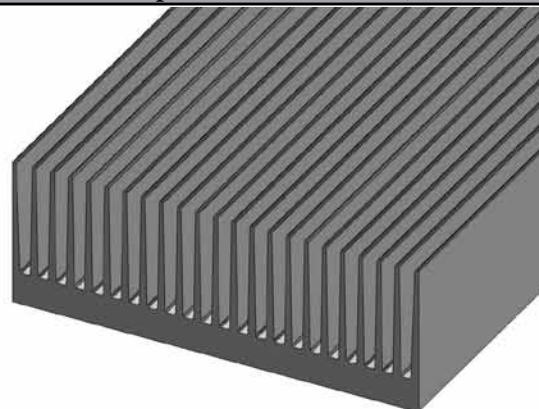
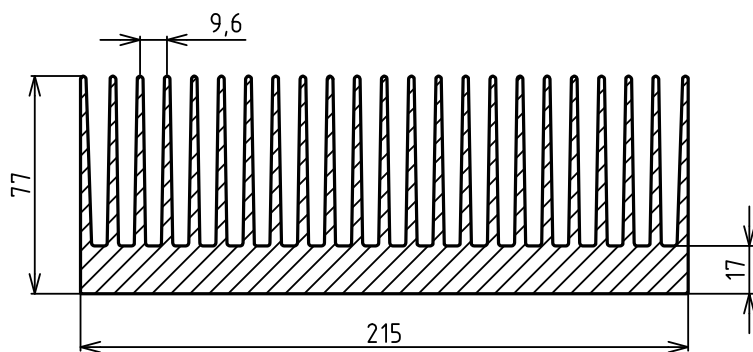


KE 215

hmotnosť / weight: 20,90 kg/m

obvod / perimeter: 3 125 mm

Rth (pre/for 150 mm): 0,36 °C/W

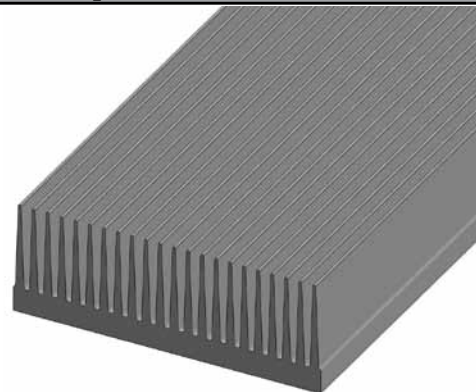
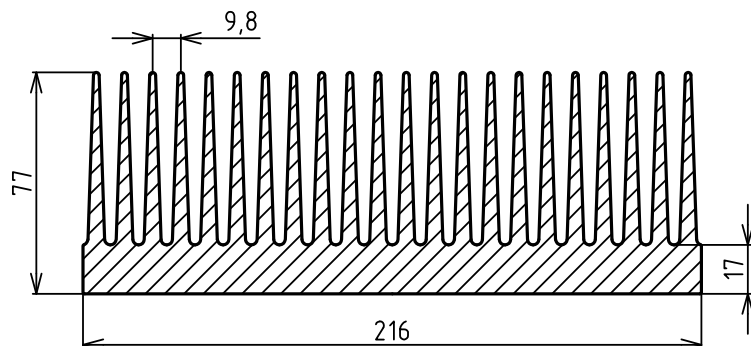


K 216

hmotnosť / weight: 24,00 kg/m

obvod / perimeter: 2 966 mm

Rth (pre/for 150 mm): 0,35 °C/W

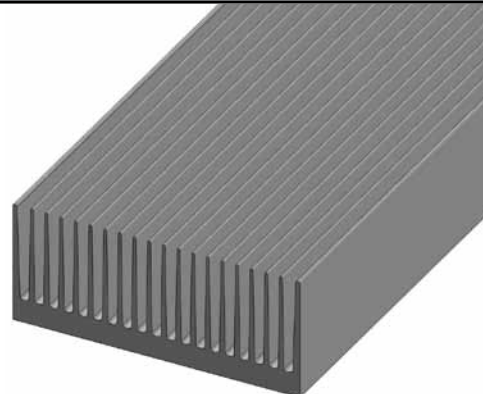
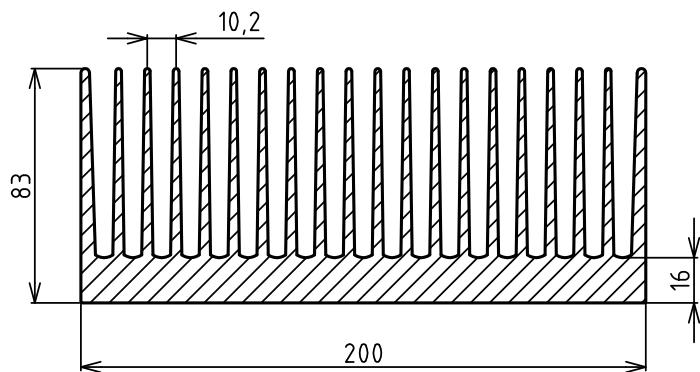


KA 200

hmotnosť / weight: 19,90 kg/m

obvod / perimeter: 3 025 mm

Rth (pre/for 150 mm): 0,34 °C/W

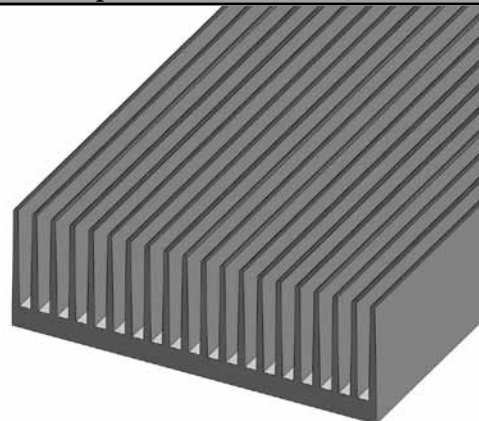
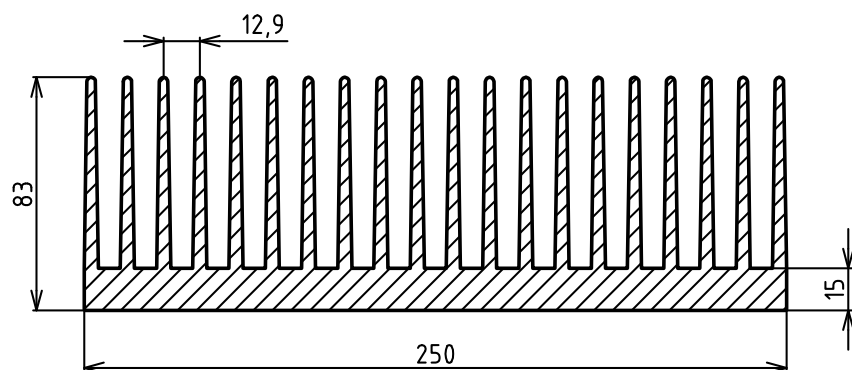


KX 250

hmotnosť / weight: 25,10 kg/m

obvod / perimeter: 3 186 mm

Rth (pre/for 150 mm): 0,23 °C/W



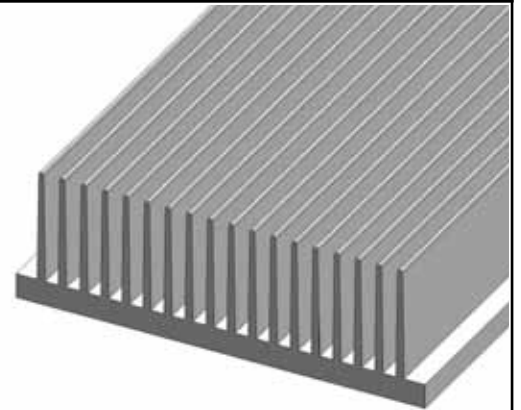
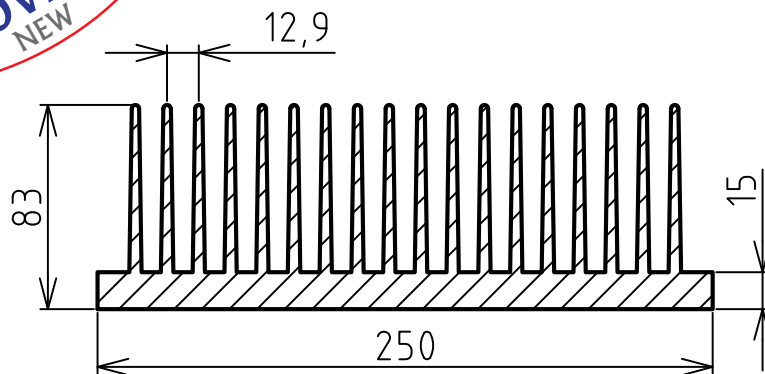
KY 250

hmotnosť / weight: 23,23 kg/m

obvod / perimeter: 2 919 mm

Rth (pre/for 150 mm): -- °C/W

Novinka
NEW



hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

°C/W

hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

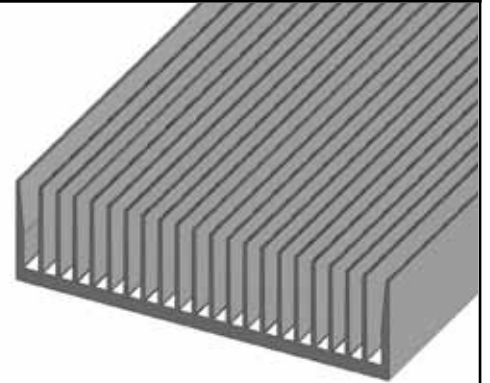
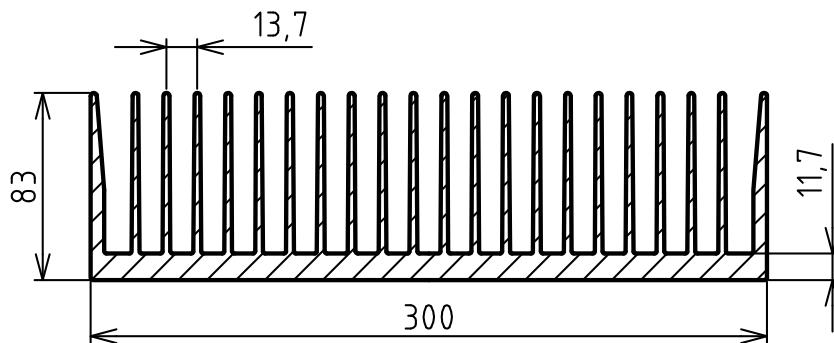
°C/W

KE 300

hmotnosť / weight: 23,08 kg/m

obvod / perimeter: 3 695 mm

Rth (pre/for 150 mm): 0,23 °C/W

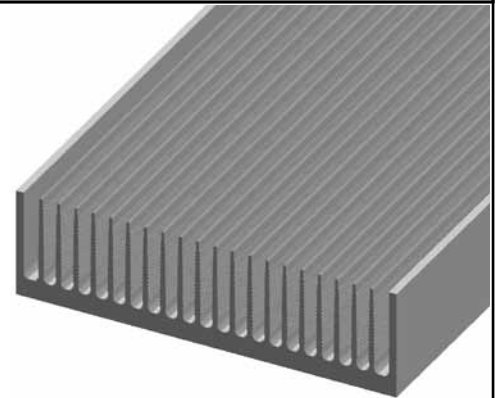
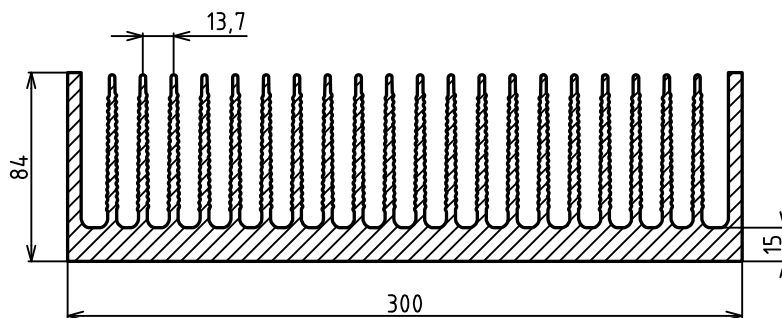


KX 300

hmotnosť / weight: 28,45 kg/m

obvod / perimeter: 3 745 mm

Rth (pre/for 150 mm): 0,2 °C/W



zváraný chladič / welded heatsink

hmotnosť / weight:

kg/m

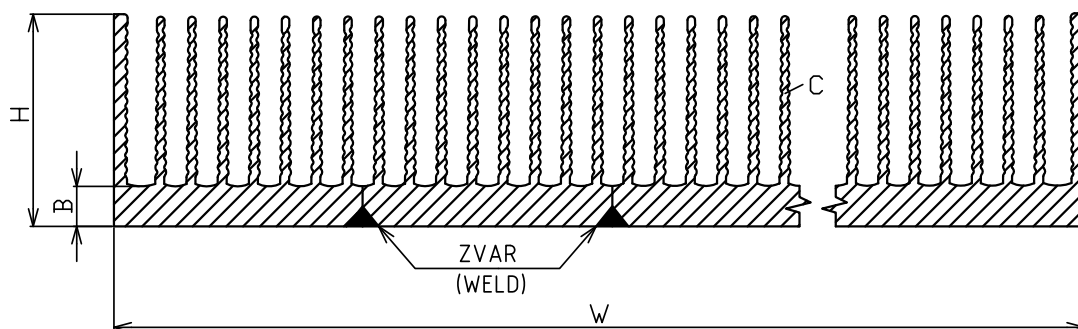
obvod / perimeter:

mm

Rth (pre/for

mm):

°C/W



W - šírka podľa požiadavky / width as required

B, C, H - podľa typu použitého chladiča / according to a type of used heatsink

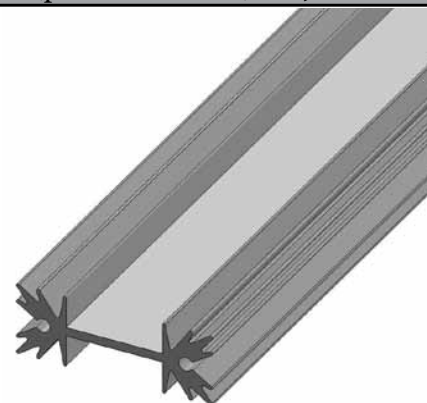
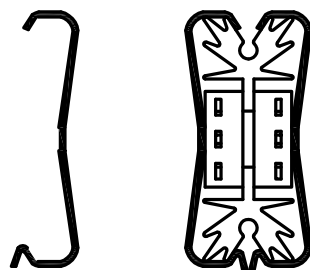
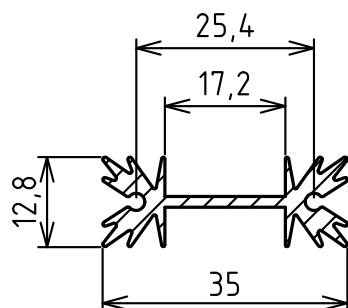
Chladiče sú zvárané na robotizovanom pracovisku / Heatsinks are welded at robotic workstation

TEA 35

hmotnosť / weight: 0,40 kg/m

obvod / perimeter: 185 mm

Rth (pre/for 50 mm): 8,5 °C/W



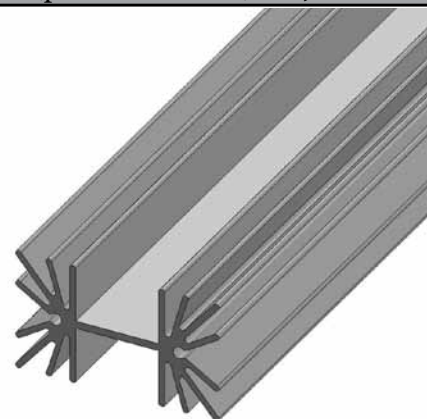
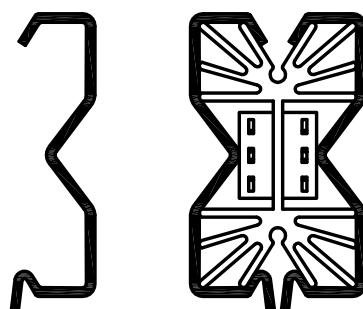
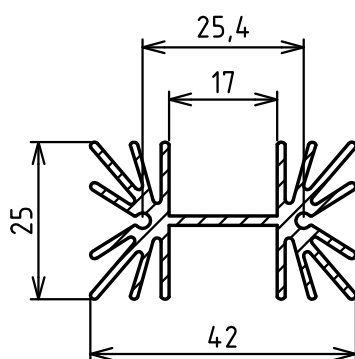
CLIP TEA 35

TEA 40

hmotnosť / weight: 0,74 kg/m

obvod / perimeter: 377 mm

Rth (pre/for 50 mm): 6,0 °C/W



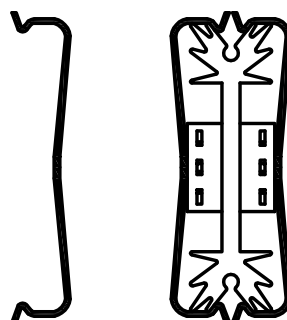
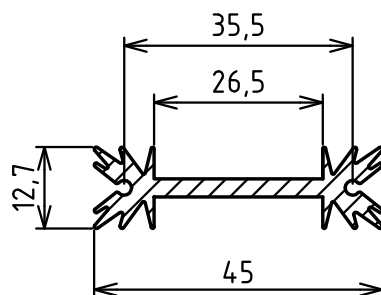
CLIP TEA40

TEA 45

hmotnosť / weight: 0,55 kg/m

obvod / perimeter: 201 mm

Rth (pre/for 50 mm): 6,2 °C/W



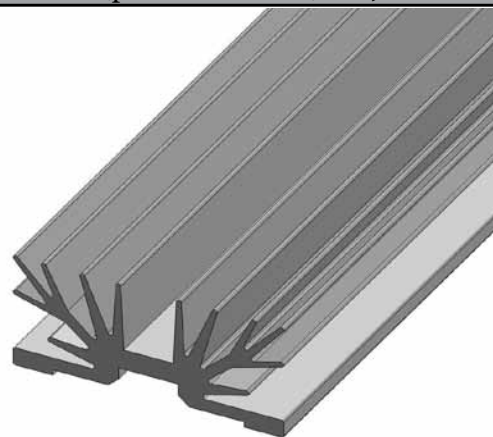
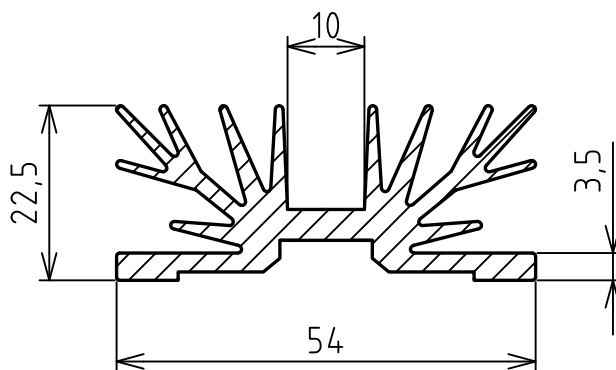
CLIP TEA45

T 54

hmotnosť / weight: 1,24 kg/m

obvod / perimeter: 394 mm

Rth (pre/for 100 mm): 3,3 °C/W

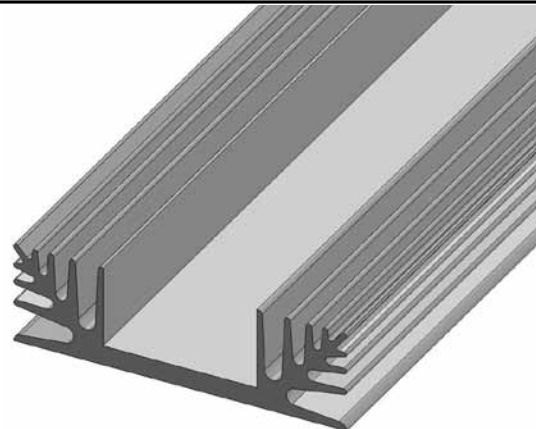
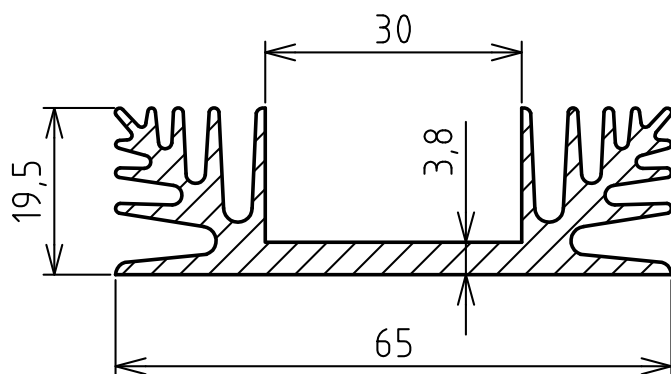


TE 65

hmotnosť / weight: 1,30 kg/m

obvod / perimeter: 382 mm

Rth (pre/for 100 mm): 3,0 °C/W



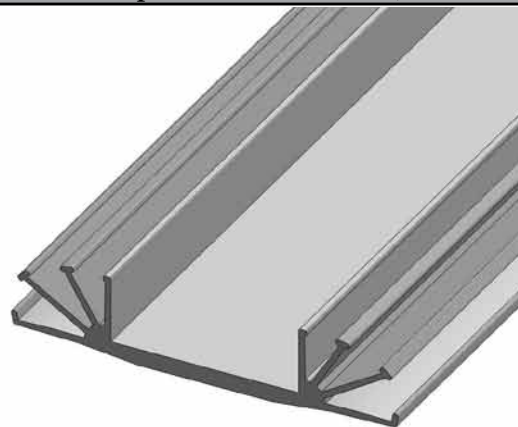
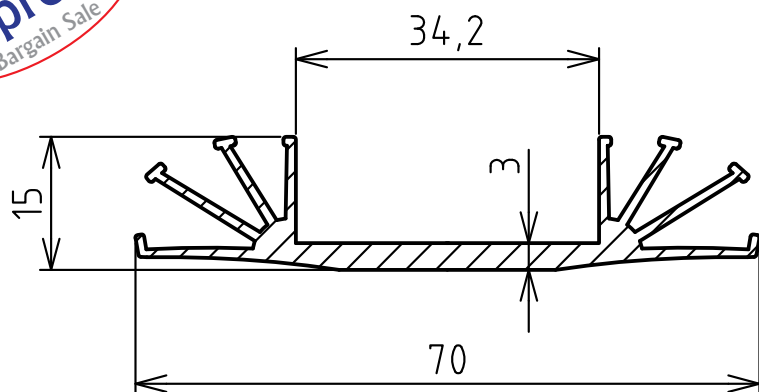
T 70

hmotnosť / weight: 0,71 kg/m

obvod / perimeter: 303 mm

Rth (pre/for 100 mm): 3,8 °C/W

Dopredaj
Bargain Sale

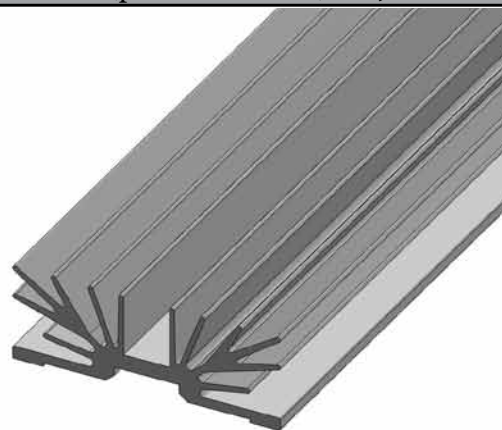
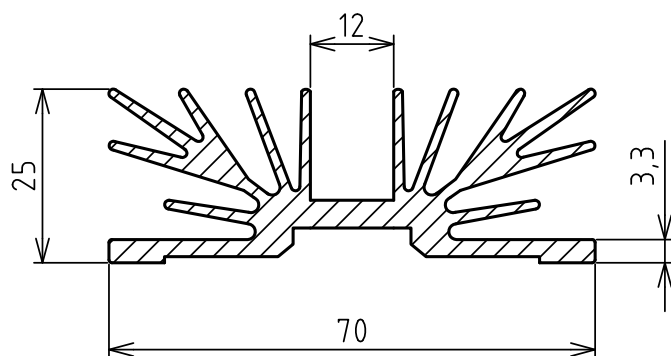


TE 70

hmotnosť / weight: 1,84 kg/m

obvod / perimeter: 518 mm

Rth (pre/for 100 mm): 2,7 °C/W

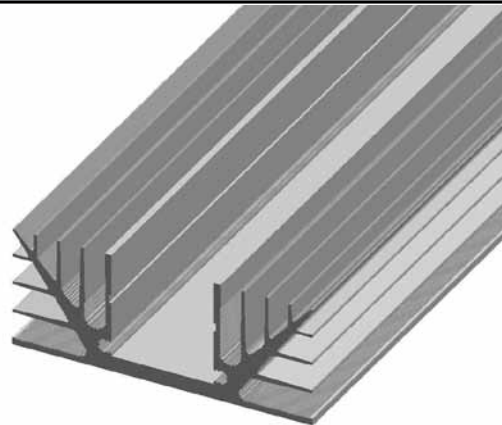
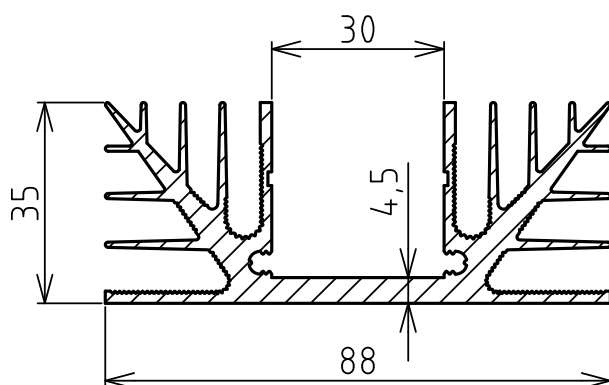


T 88

hmotnosť / weight: 2,37 kg/m

obvod / perimeter: 712 mm

Rth (pre/for 100 mm): 1,7 °C/W

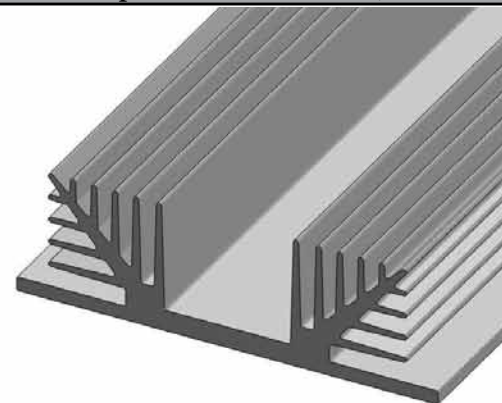
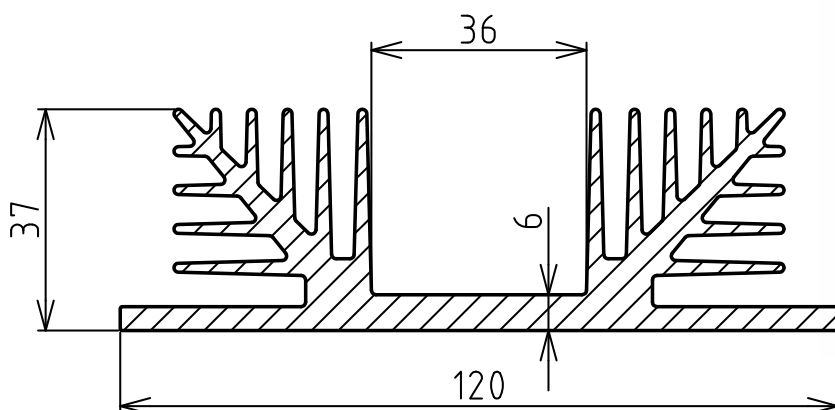


ZH 2476

hmotnosť / weight: 4,05 kg/m

obvod / perimeter: 876 mm

Rth (pre/for 100 mm): 1,5 °C/W

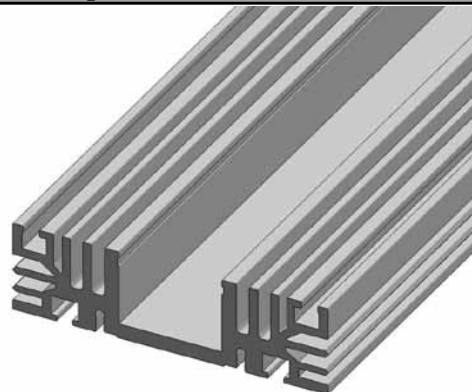
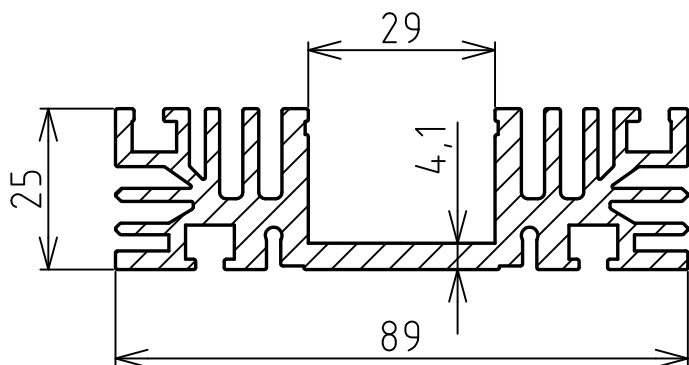


ZH 8779

hmotnosť / weight: 2,63 kg/m

obvod / perimeter: 633 mm

Rth (pre/for 100 mm): -- °C/W

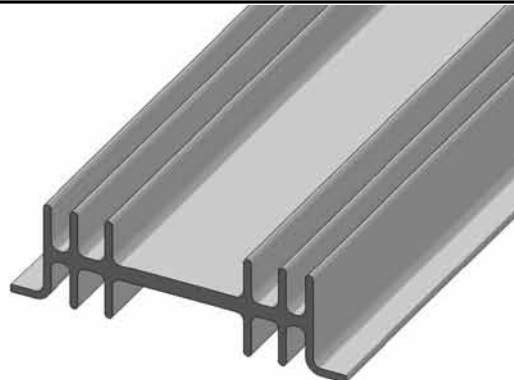
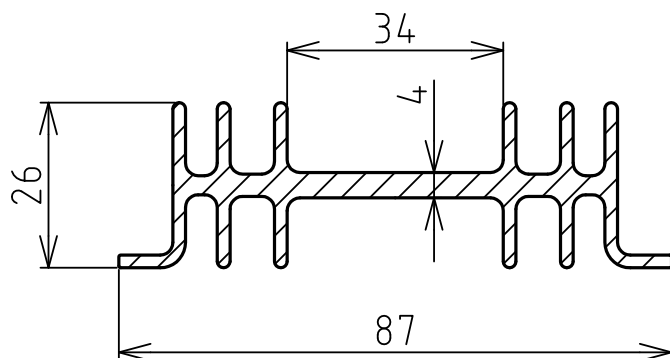


ZH 0752

hmotnosť / weight: 1,54 kg/m

obvod / perimeter: 485 mm

Rth (pre/for 100 mm): 2,8 °C/W

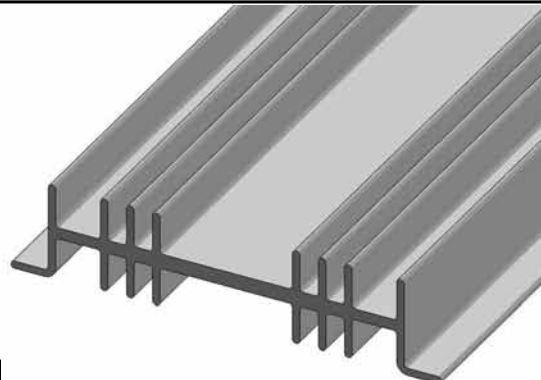
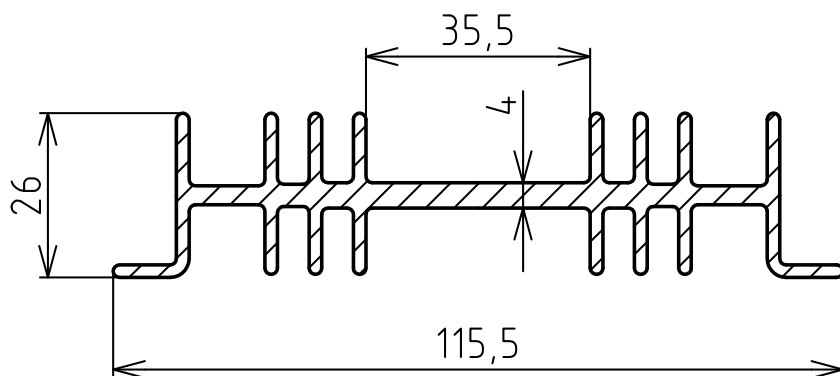


ZH 0136

hmotnosť / weight: 1,99 kg/m

obvod / perimeter: 561 mm

Rth (pre/for 100 mm): 2,2 °C/W

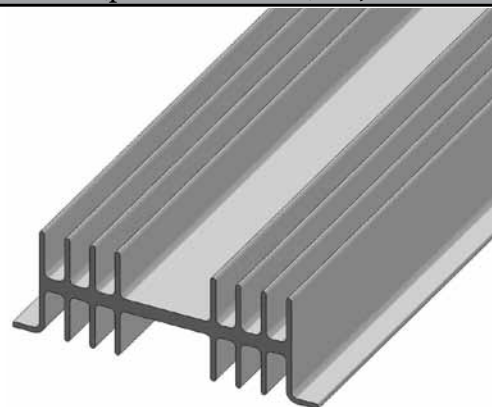
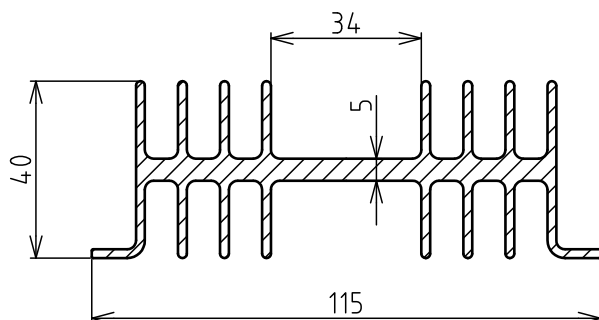


ZH 0753

hmotnosť / weight: 2,95 kg/m

obvod / perimeter: 758 mm

Rth (pre/for 100 mm): 1,80 °C/W

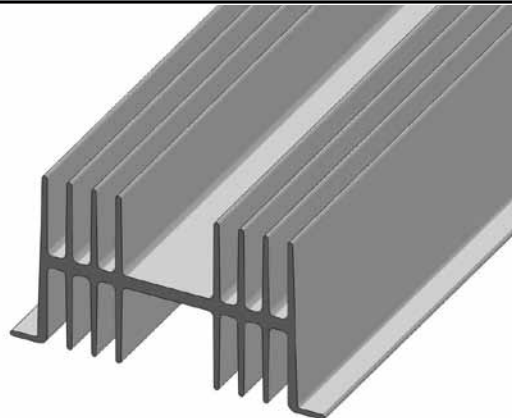
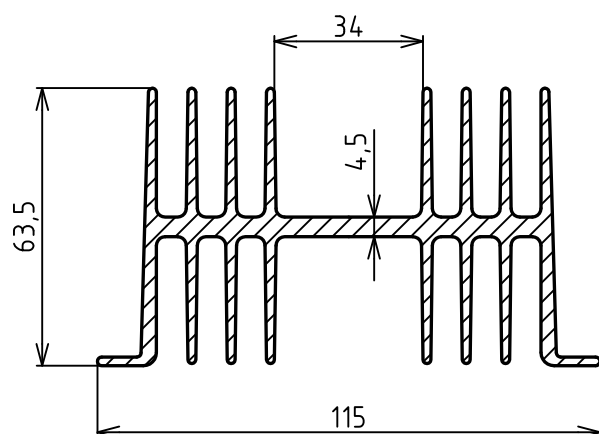


ZH 0137

hmotnosť / weight: 4,20 kg/m

obvod / perimeter: 1 122 mm

Rth (pre/for 100 mm): 1,15 °C/W

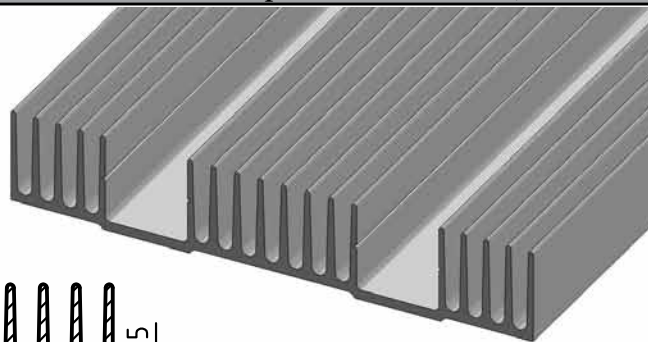
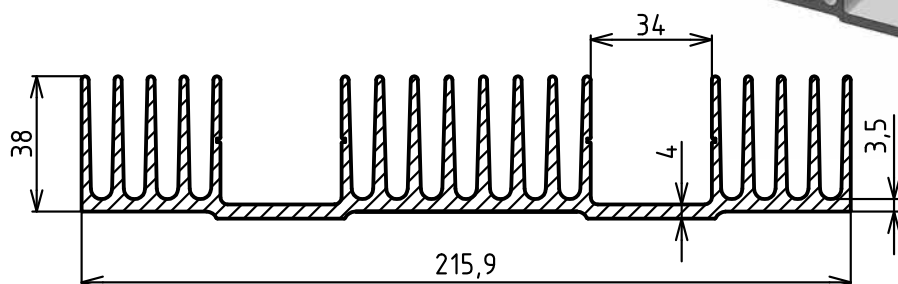


ZH 1929

hmotnosť / weight: 6,76 kg/m

obvod / perimeter: 1 742 mm

Rth (pre/for 100 mm): 0,65 °C/W

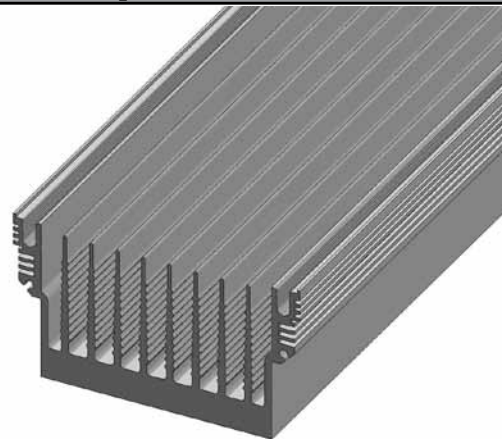
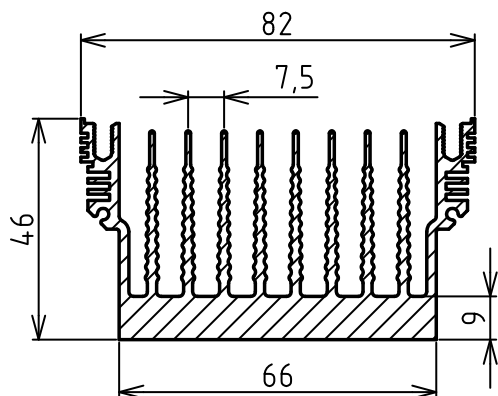


ES 19451

hmotnosť / weight: 3,30 kg/m

obvod / perimeter: 1 015 mm

Rth (pre/for 100 mm): 2,16 °C/W

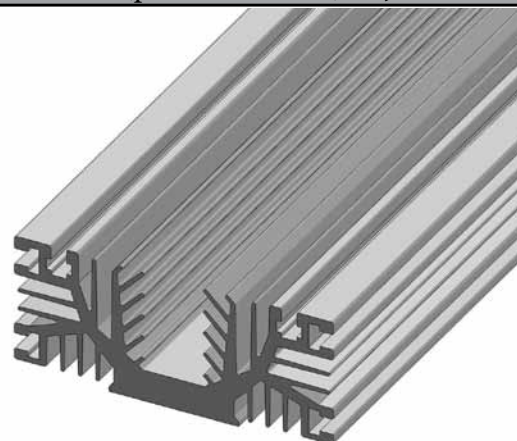
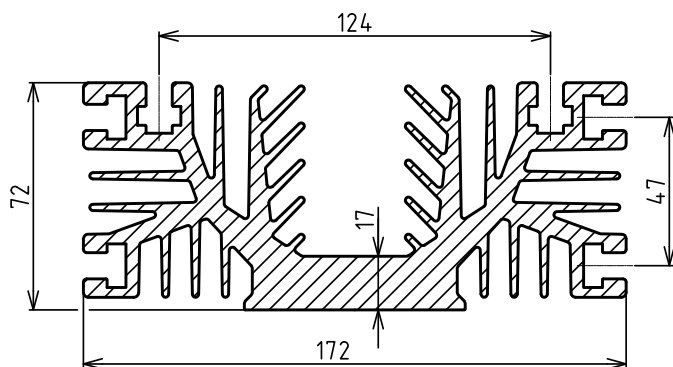


ZH 2428

hmotnosť / weight: 13,34 kg/m

obvod / perimeter: 1 979 mm

Rth (pre/for 100 mm): 0,84 °C/W

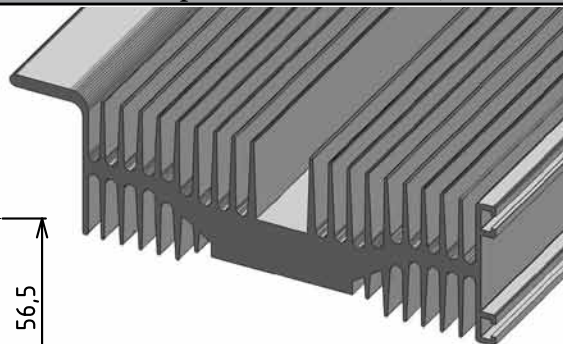
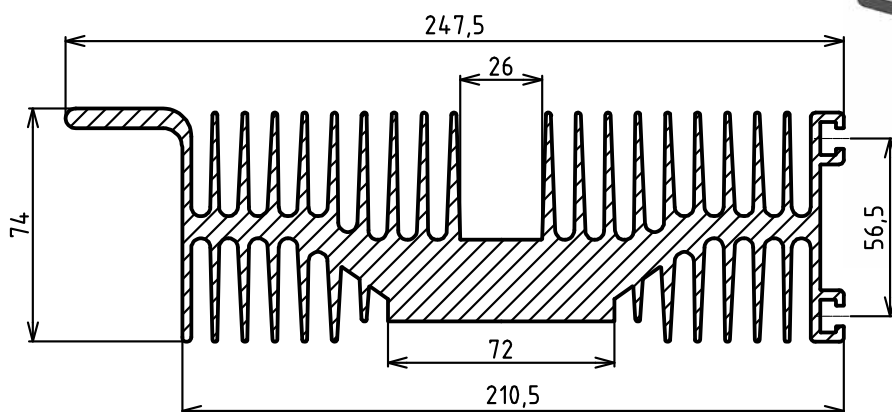


A 6670

hmotnosť / weight: 17,60 kg/m

obvod / perimeter: 2 681 mm

Rth (pre/for 100 mm): 0,4 °C/W

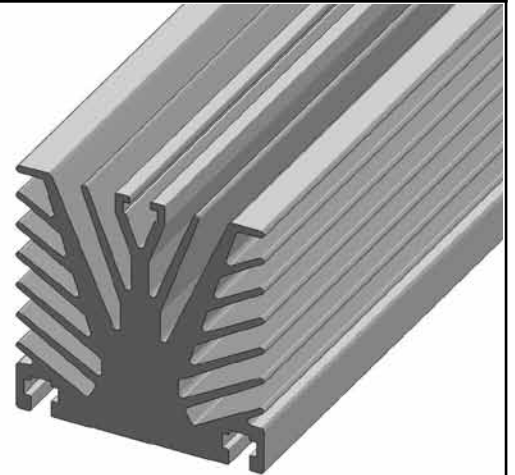
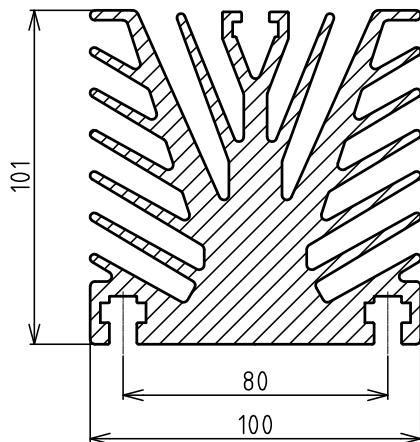


ZH 2838

hmotnosť / weight: 14,02 kg/m

obvod / perimeter: 1 553 mm

Rth (pre/for 100 mm): 0,79 °C/W

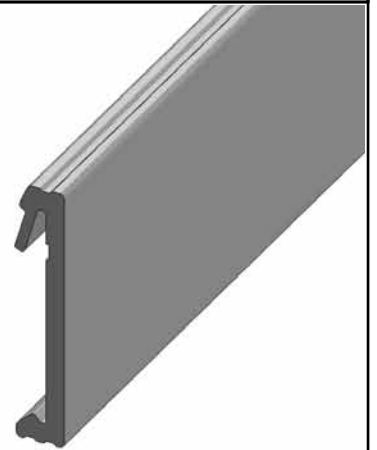
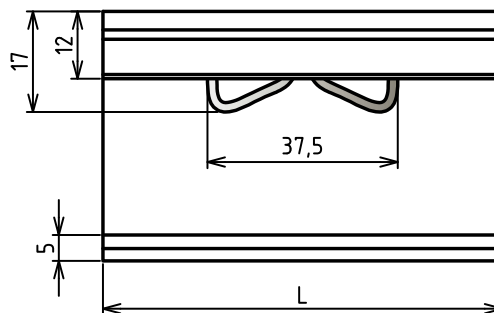
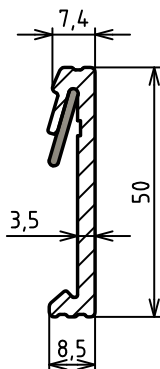


KL 35/50

hmotnosť / weight: 0,64 kg/m

obvod / perimeter: 145 mm

Rth (pre/for -- mm): -- °C/W



hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

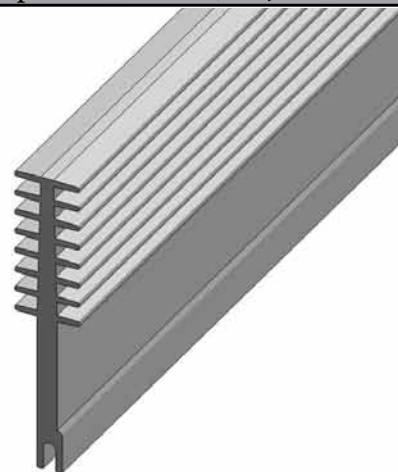
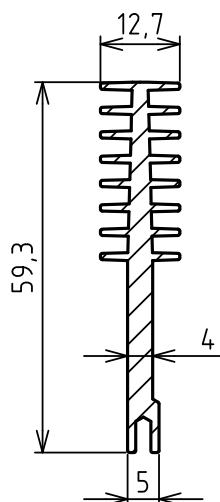
°C/W

ZH 4611

hmotnosť / weight: 0,81 kg/m

obvod / perimeter: 279 mm

Rth (pre/for 100 mm): 3,59 °C/W

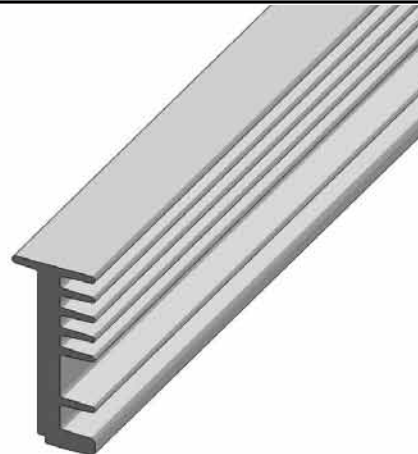
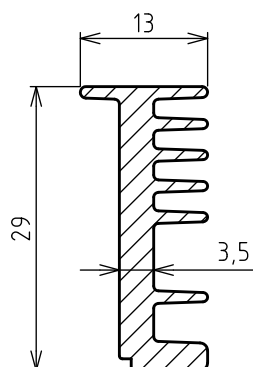


ZH 9057

hmotnosť / weight: 0,43 kg/m

obvod / perimeter: 141 mm

Rth (pre/for 100 mm): -- °C/W

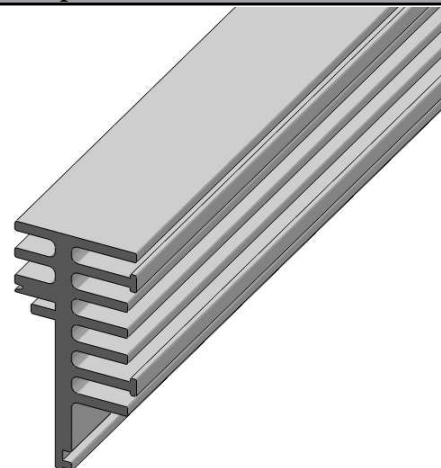
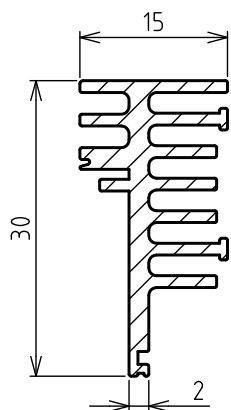


ZH 8678

hmotnosť / weight: 0,41 kg/m

obvod / perimeter: 205 mm

Rth (pre/for 100 mm): -- °C/W

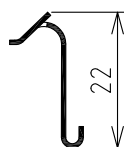
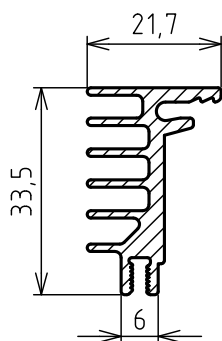


ZH 8247

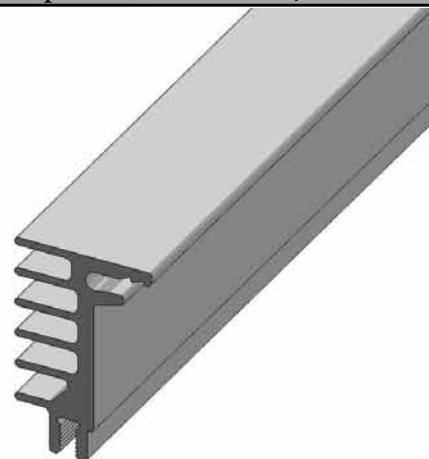
hmotnosť / weight: 0,56 kg/m

obvod / perimeter: 233 mm

Rth (pre/for 100 mm): 4,68 °C/W



CLIP 221007

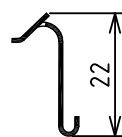
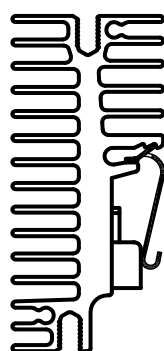
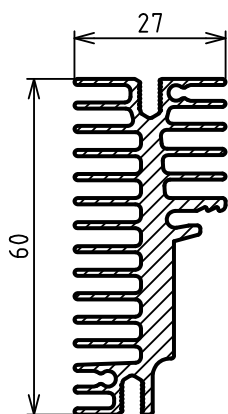


ZH 7505

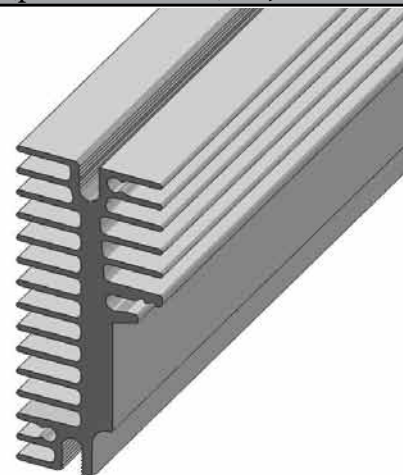
hmotnosť / weight: 1,53 kg/m

obvod / perimeter: 602 mm

Rth (pre/for 100 mm): 3,21 °C/W



CLIP 221007

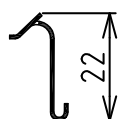
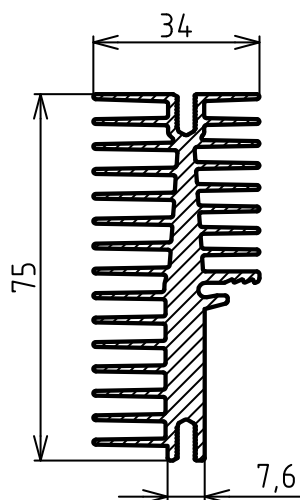


ZH 7504

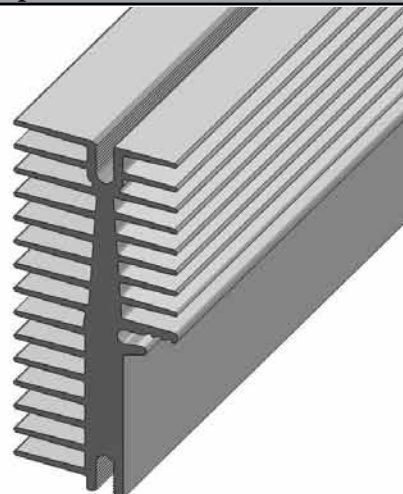
hmotnosť / weight: 2,42 kg/m

obvod / perimeter: 868 mm

Rth (pre/for 100 mm): 2,81 °C/W



CLIP 221007

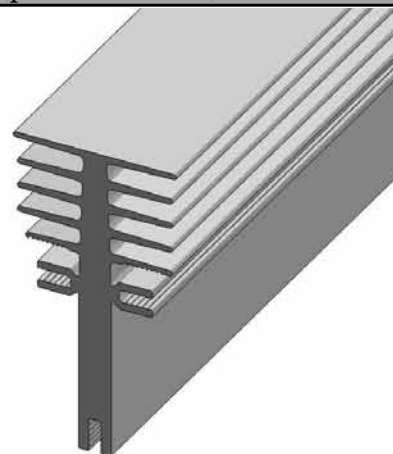
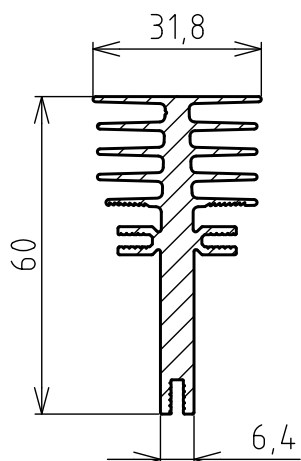


ZH 8555

hmotnosť / weight: 1,50 kg/m

obvod / perimeter: 455 mm

Rth (pre/for 100 mm): -- °C/W



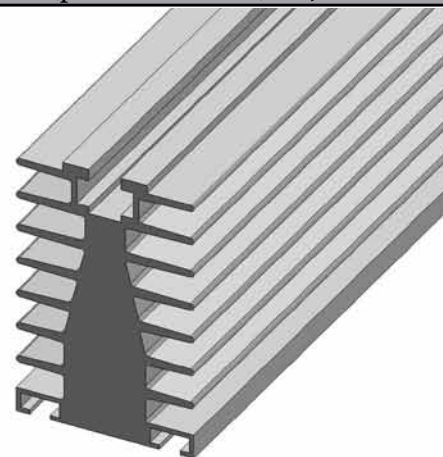
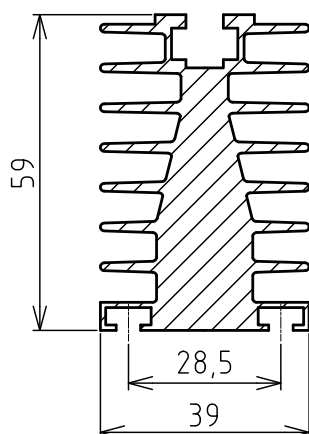
A 59

hmotnosť / weight: 3,30 kg/m

obvod / perimeter: 582 mm

Rth (pre/for 100 mm): 2,40 °C/W

Dopredaj
Bargain Sale

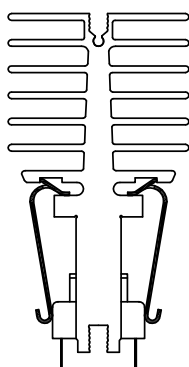
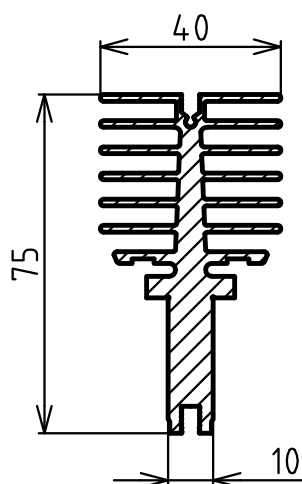


A 75M

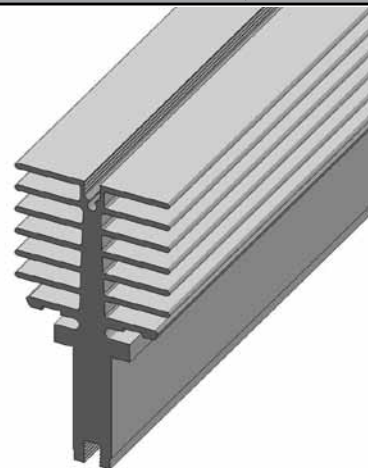
hmotnosť / weight: 2,55 kg/m

obvod / perimeter: 684 mm

Rth (pre/for 100 mm): 1,5 °C/W

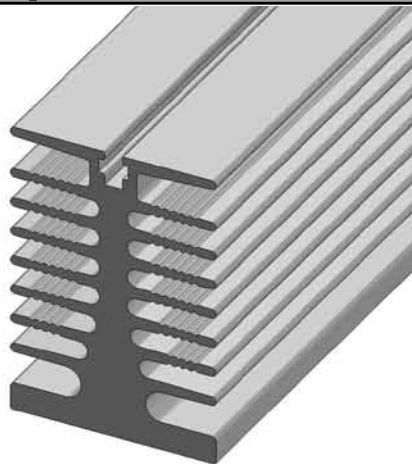
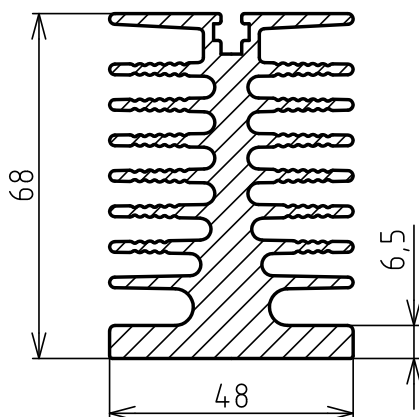


CLIP 221007



ZH 8002

hmotnosť / weight: 4,29 kg/m obvod / perimeter: 849 mm Rth (pre/for 100 mm): -- °C/W



hmotnosť / weight: kg/m obvod / perimeter: mm Rth (pre/for mm): °C/W

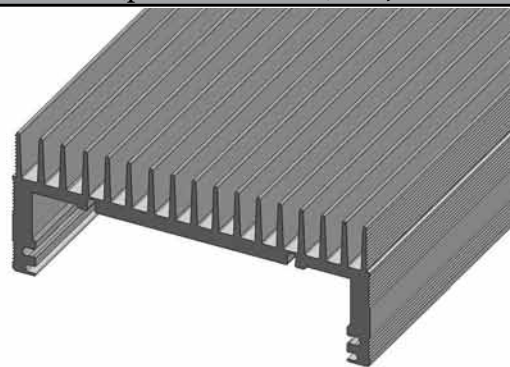
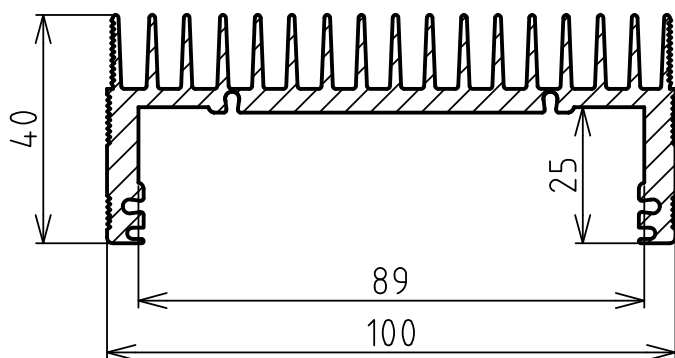
hmotnosť / weight: kg/m obvod / perimeter: mm Rth (pre/for mm): °C/W

C 100

hmotnosť / weight: 2,40 kg/m

obvod / perimeter: 782 mm

R_{th} (pre/for 100 mm): 2,2 °C/W

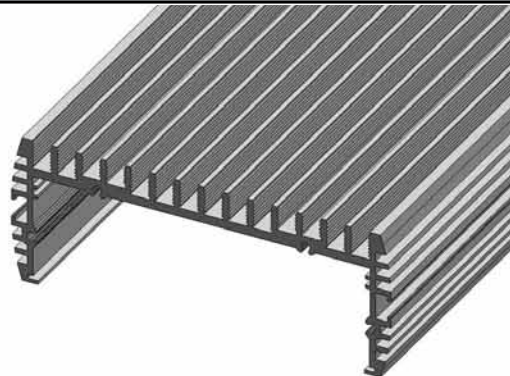
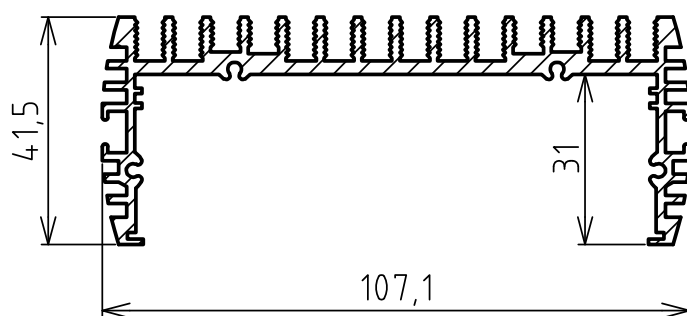


C 107

hmotnosť / weight: 1,96 kg/m

obvod / perimeter: 795 mm

R_{th} (pre/for 100 mm): 2,6 °C/W

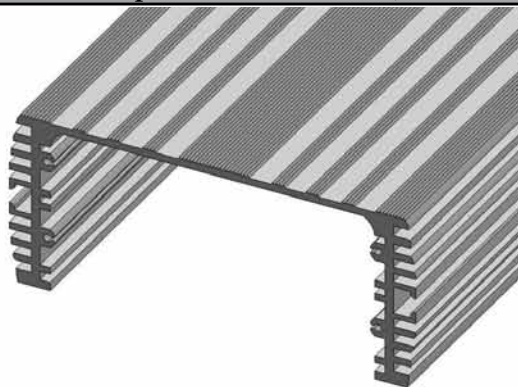
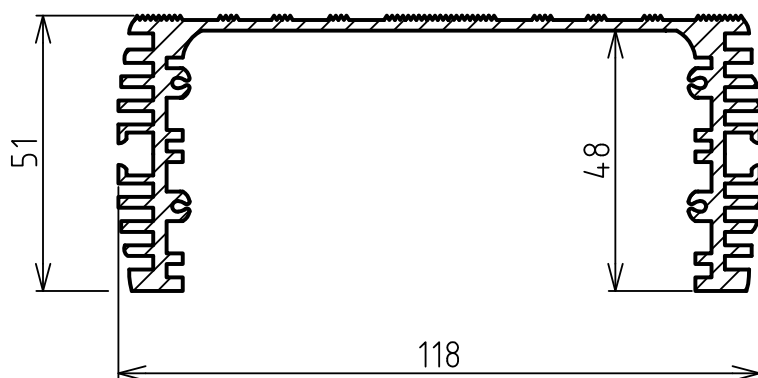


C 118

hmotnosť / weight: 2,40 kg/m

obvod / perimeter: 684 mm

R_{th} (pre/for 150 mm): 2,1 °C/W

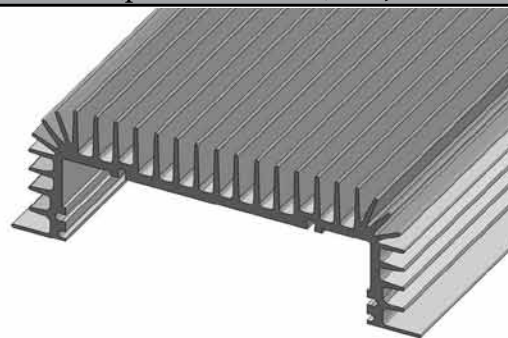
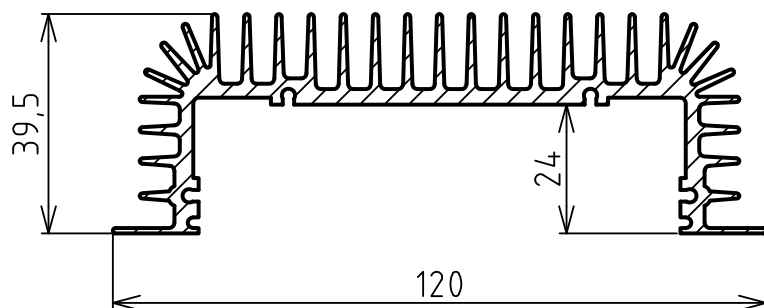


C 120

hmotnosť / weight: 2,2 kg/m

obvod / perimeter: 782 mm

Rth (pre/for 150 mm): 2,2 °C/W

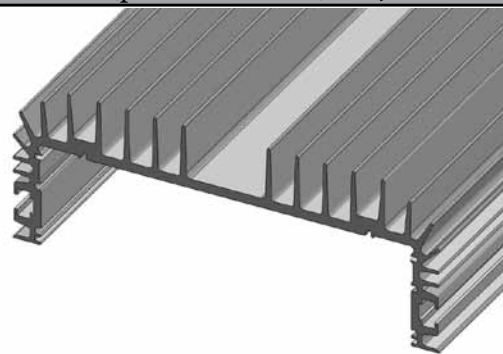
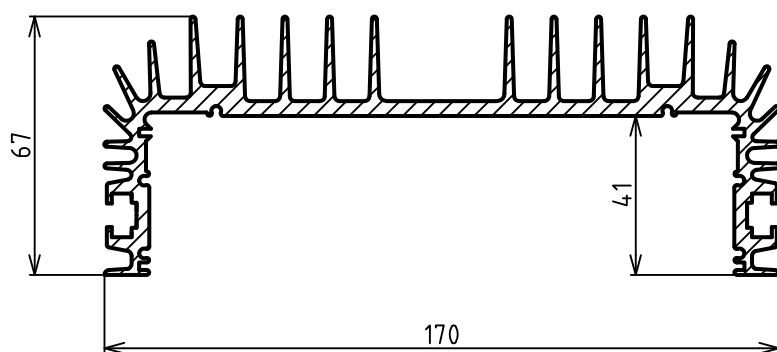


C 170

hmotnosť / weight: 4,70 kg/m

obvod / perimeter: 970 mm

Rth (pre/for 200 mm): 0,8 °C/W

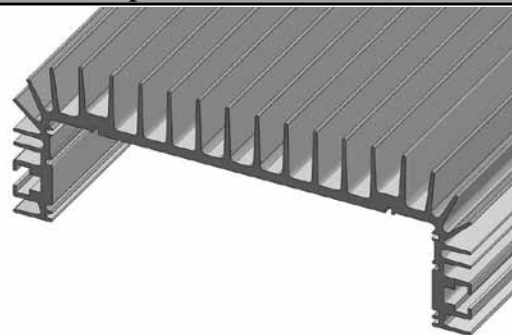
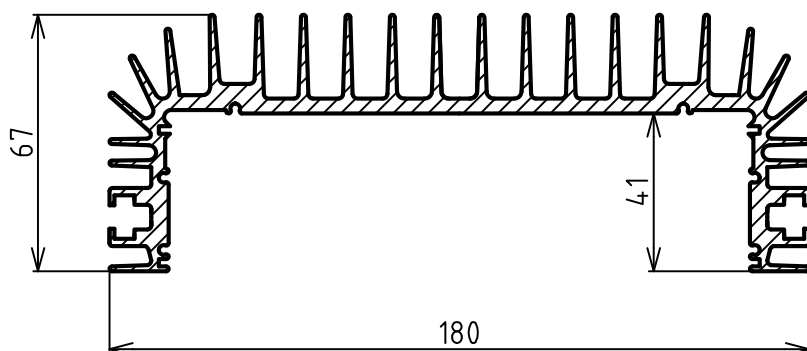


C 180

hmotnosť / weight: 5,60 kg/m

obvod / perimeter: 970 mm

Rth (pre/for 200 mm): 0,7 °C/W

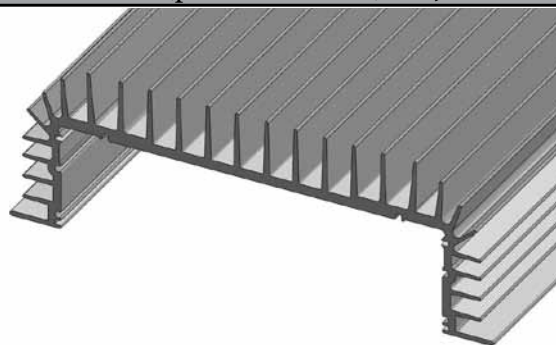
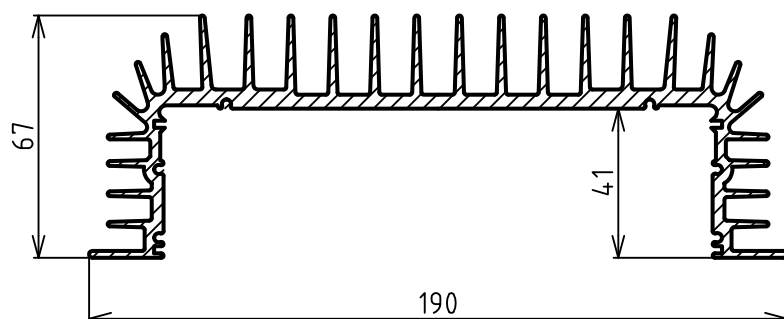


C 190

hmotnosť / weight: 4,95 kg/m

obvod / perimeter: 970 mm

Rth (pre/for 150 mm): 0,9 °C/W

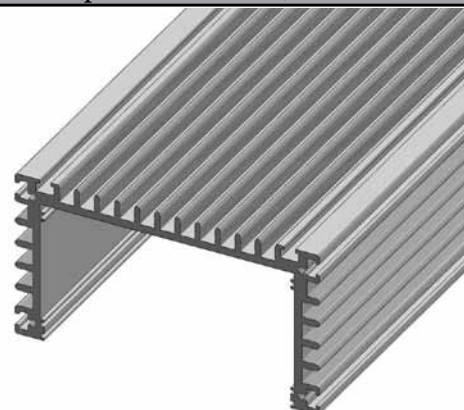
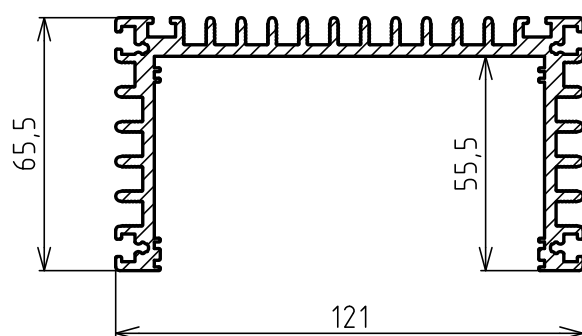


ZH 4268

hmotnosť / weight: 3,35 kg/m

obvod / perimeter: 916 mm

Rth (pre/for 100 mm): -- °C/W



hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

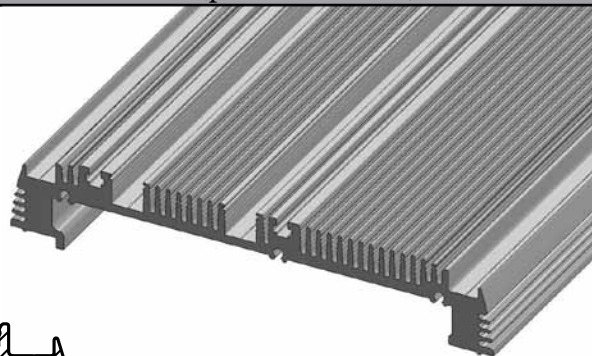
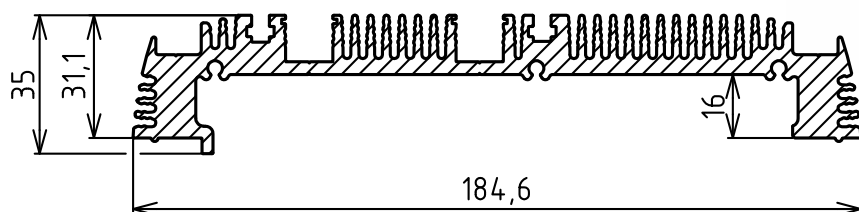
°C/W

ZH 8927

hmotnosť / weight: 5,12 kg/m

obvod / perimeter: 1 141 mm

Rth (pre/for - mm): -- °C/W

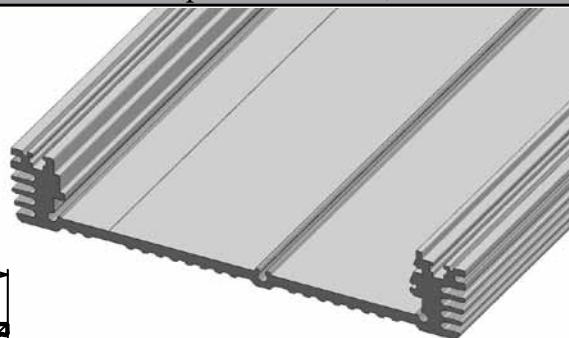
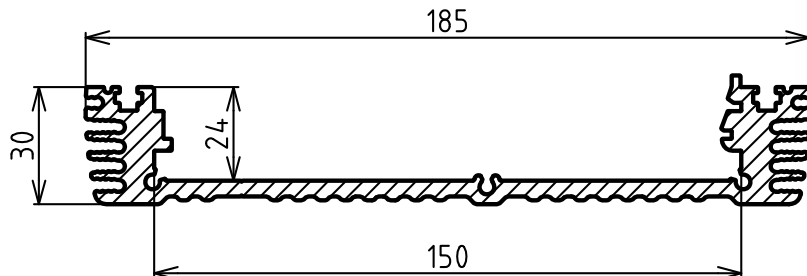


ZH 8926

hmotnosť / weight: 3,85 kg/m

obvod / perimeter: 734 mm

Rth (pre/for - mm): -- °C/W

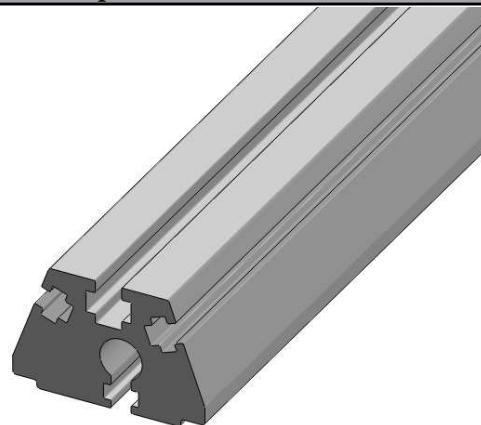
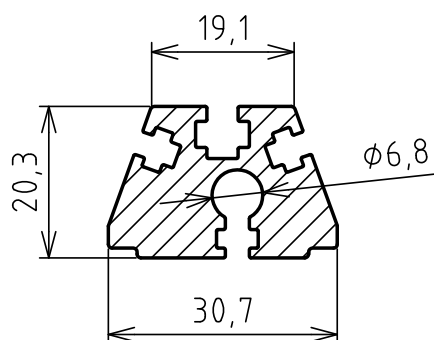


ZH 8925

hmotnosť / weight: 1,01 kg/m

obvod / perimeter: 169 mm

Rth (pre/for - mm): -- °C/W

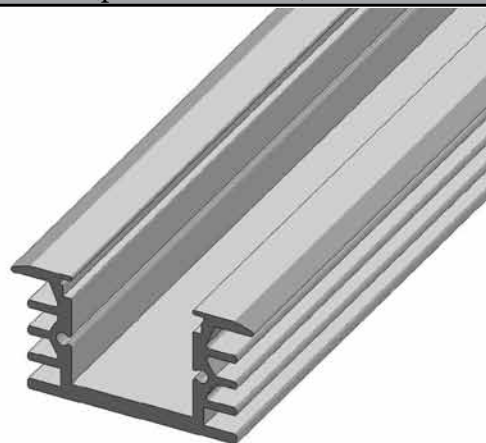
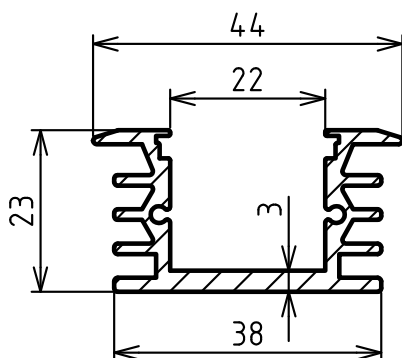


ZH 9044

hmotnosť / weight: 0,73 kg/m

obvod / perimeter: 268 mm

Rth (pre/for - mm): -- °C/W

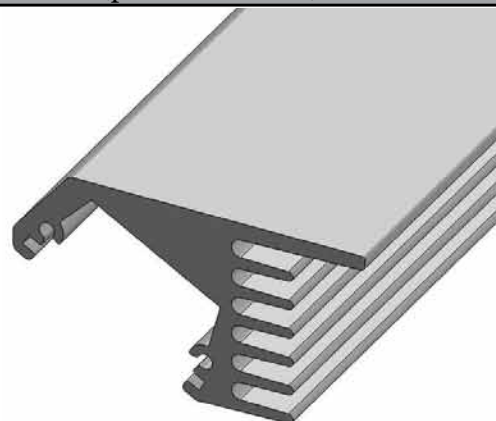
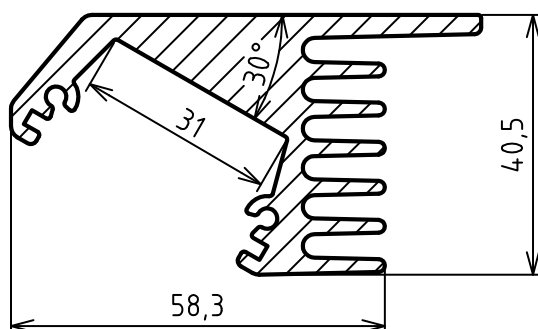


ZH 7788

hmotnosť / weight: 2,34 kg/m

obvod / perimeter: 404 mm

Rth (pre/for - mm): -- °C/W

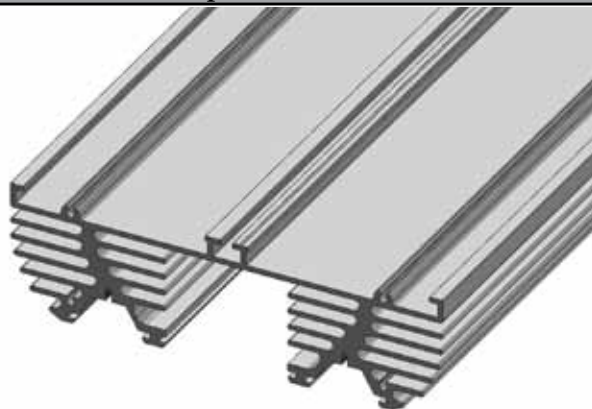
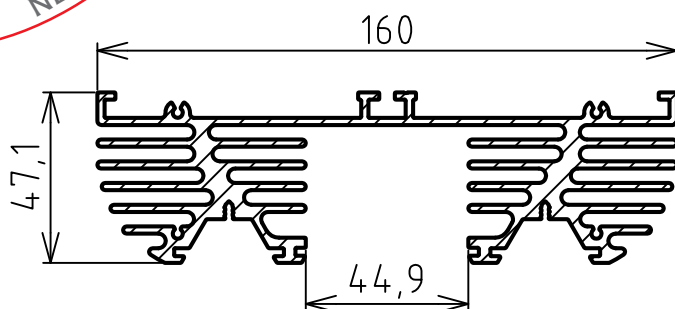


HY 25511

hmotnosť / weight: 5,26 kg/m

obvod / perimeter: 1 564 mm

Rth (pre/for - mm): -- °C/W



ZH 9099

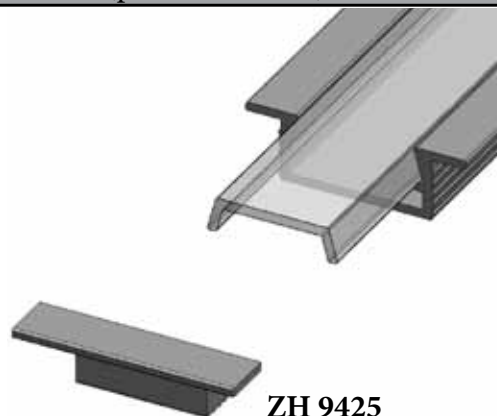
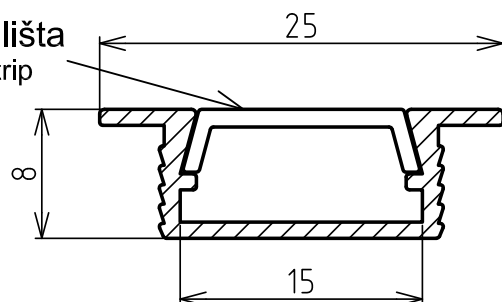
hmotnosť / weight: 0,13 kg/m

obvod / perimeter: 88 mm

Rth (pre/for - mm): -- °C/W

Novinka
NEW

plastová lišta
plastic strip



ZH 9425

ZH 9460

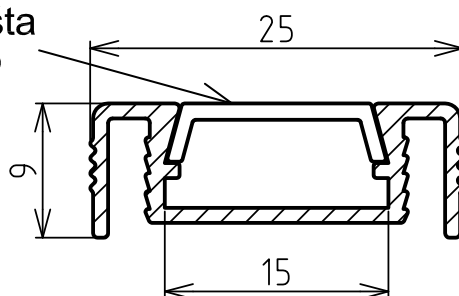
hmotnosť / weight: 0,17 kg/m

obvod / perimeter: 119 mm

Rth (pre/for - mm): -- °C/W

Novinka
NEW

plastová lišta
plastic strip



hmotnosť / weight:

kg/m

obvod / perimeter:

mm

Rth (pre/for

mm):

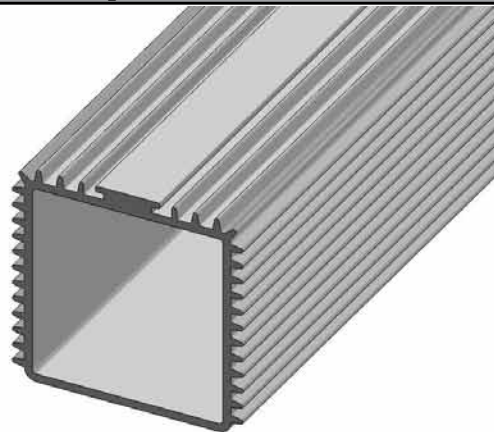
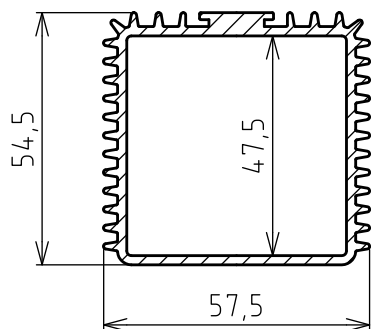
°C/W

ZH 6504

hmotnosť / weight: 1,55 kg/m

obvod / perimeter: 423 mm

Rth (pre/for -- mm): -- °C/W

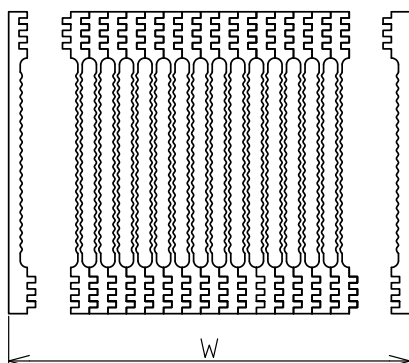
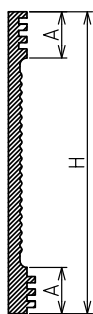


I 50 (71, 80, 91, 128) MF

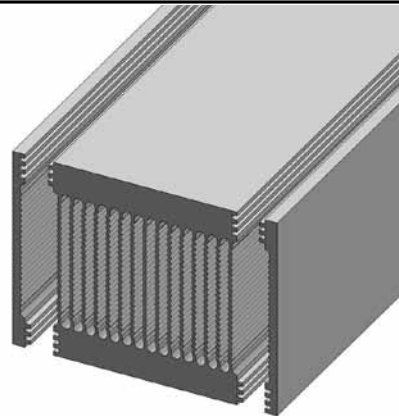
hmotnosť / weight: --- kg/m

obvod / perimeter: ---- mm

Rth (pre/for -- mm): -- °C/W



TYP	H	A
I 50 MF	51	11
I 71 MF	71	14
I 80 MF	81,5	11
I 91 MF	91,5	13,8
I 128 MF	128	14



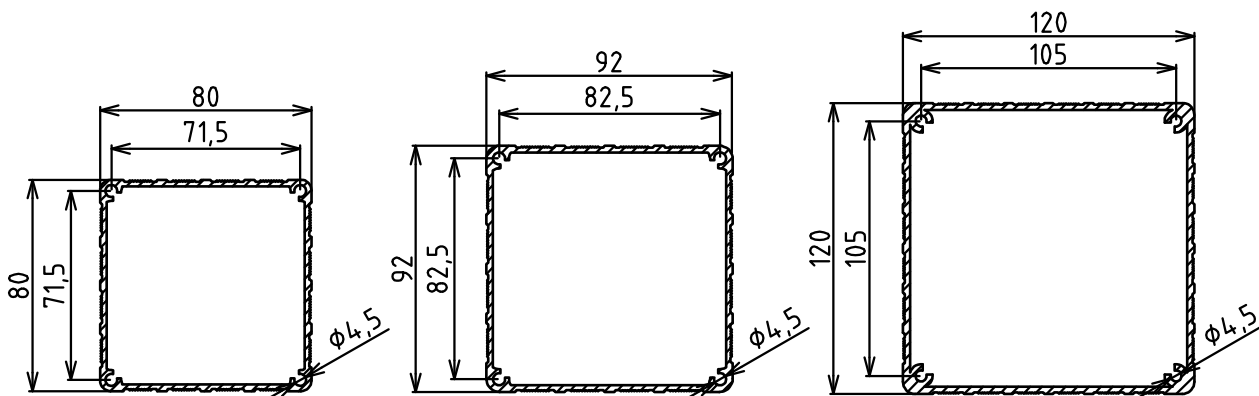
W - podľa požiadavky / according to a request
na objednávku / made-to-order

SPACER

hmotnosť / weight: --- kg/m

obvod / perimeter: ---- mm

Rth (pre/for -- mm): -- °C/W



na objednávku / made-to-order

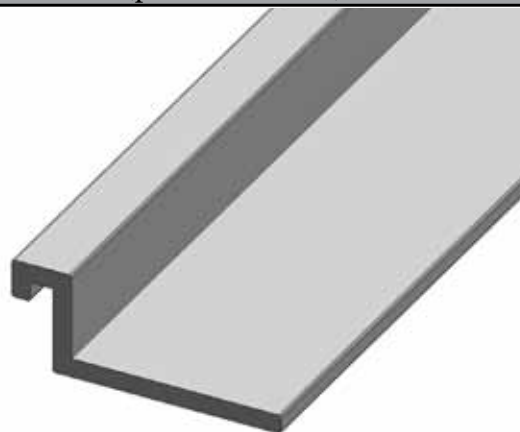
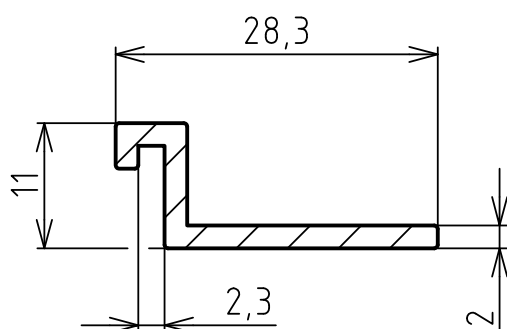
ZH 2924

hmotnosť / weight: 0,21 kg/m

obvod / perimeter: 82 mm

Rth (pre/for -- mm): -- °C/W

Novinka
NEW



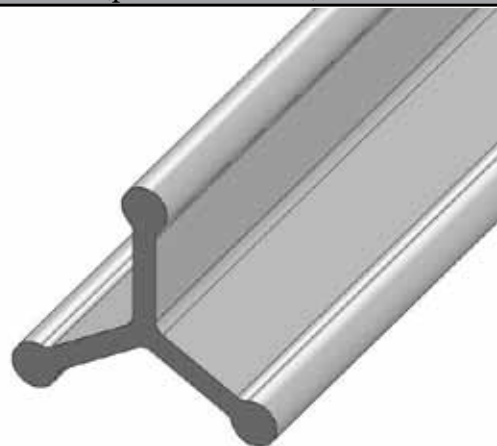
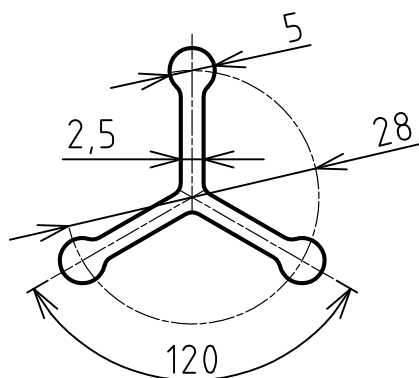
ZH 4410

hmotnosť / weight: 0,39 kg/m

obvod / perimeter: 105 mm

Rth (pre/for -- mm): -- °C/W

Novinka
NEW

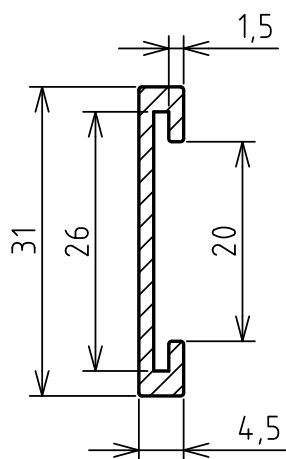


ZH 8090

hmotnosť / weight: 0,19 kg/m

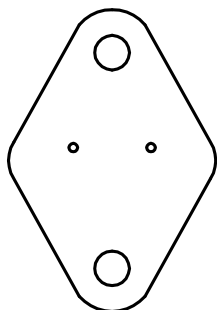
obvod / perimeter: 88 mm

Rth (pre/for -- mm): -- °C/W

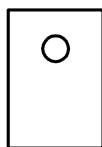


IZOLAČNÉ PODLOŽKY / ISOLATING PLATES

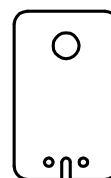
Sľudové podložky / Micaceous plates



T03

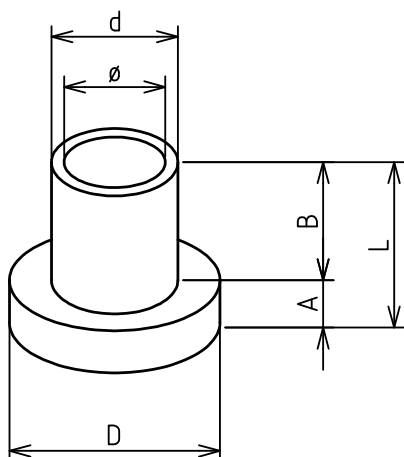


T0126



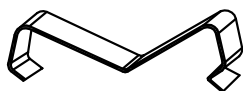
T0220

Nylonové podložky / Nylon plates



TYP	D	d	Ø	A	B	L
TO3	6,6	3,9	3	1,4	3,6	5
TO220	6	3,6	3	1,2	1,2	2,4

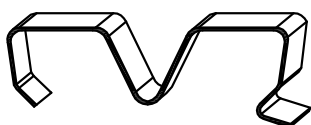
Spony / Clips



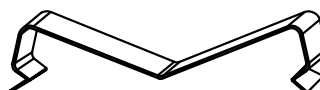
TEA 35



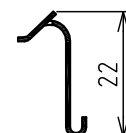
TEA 35A



TEA 40

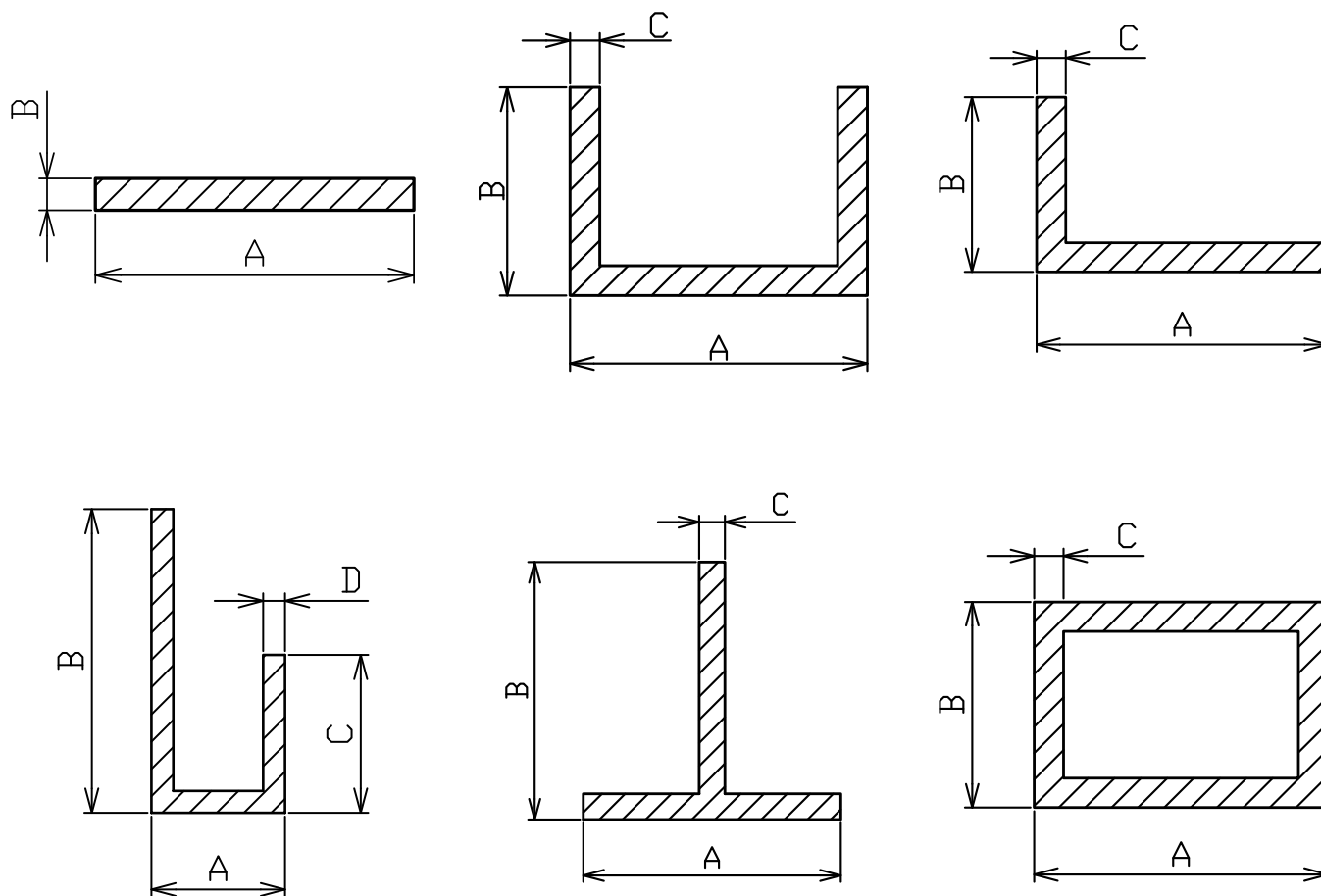


TEA 45



CLIP 221007

ŠTANDARDNÉ PROFILY / STANDARD PROFILES



Našu ponuku štandardných profilov si môžete pozrieť na našej stránke:

(You can find an offer of our standard profiles at)

www.gamaaluminium.sk

alebo sa môžete informovať mailom:

(or you can contact us by e-mail)

objednavky.gamaaluminium@gmail.com

mtz.gamaaluminium@gmail.com

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ST-TEA28	2
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TEA 40	25
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Dear business partners,

We do not need to introduce ourselves to many of you or try to persuade you that GAMAaluminium is in the long term a steady and strong company on the market with aluminium coolers, with a constantly increasing range of coolers and aluminium profiles. The following lines are dedicated to those of you who have just discovered us today.

We are a production-business company specialising in the treatment and selling of aluminium coolers and aluminium profiles, which will find their application primarily in the field of electrical engineering (electrotechnics).

Cooperation with us pays off!

Marián Gahr
CEO of GAMAaluminium

Our firm is continuously developing and growing, either in the field of technical development, staff management, or in the area of enhancing quality of provided services. This is proven by both obtaining and maintaining the quality system in the form of certificates ISO 9001:2008, ISO 14001:2004, ISO 18001:2007. Regarding the fact that we work with hazardous substances, environmental protection belongs to our priorities, which is also evident by prior obtaining the Certificate of evaluation and recycling of packaging waste.

The company is situated on its own premises, which we adapt to production needs. At the beginning of the year we built a new storage house for finished products and established new facilities for more CNC machines. The company is well-equipped by modern CNC machines of the DOOSAN and HURCO brand. Recently we have extended a production park with two new CNC machines, also of the DOOSAN and HURCO brand. For dividing materials we use three circular saws, two of which are automatic.

Lately there is a growing demand for large coolers, which cannot be manufactured by means of classical technologies, and therefore one possible solution is to weld up such cooler from several pieces. Even in this respect we are accommodating to our customers. For this purpose we have a robotic workstation with the installed OTC DAIHEN welding robot. We meet all customer's demands, not only in the area of treatment by means of the CNC machines, but also as regards the surface treatment. We have our own anodic oxidation (eloxing) line. Standardly we produce natural and black elox. In case of customer's needs, we are able to provide the elox of blue, gold and red colour. The fact that we can deliver a finished cooler to the customer strengthens the company's position on the market with aluminium coolers and their treatment. Our flexibility in the business and production area makes us an excellent partner for the delivery of your orders.

Past, present, future ...

The history of production and selling of aluminium coolers that are currently offered by the company GAMAaluminium started to be written in 1997. Since then the company has profiled itself and it has acquired a steady position not only in Slovakia. In cooperation with our business partners, our products are dispatched mainly to the Czech Republic, Poland, Hungary, Germany and Romania. We also have prominent customers in England, Sweden, France, Belgium, Austria and Italy. We permanently ensure a continuous growth in production and selling in compliance with customer's specific demands.



We participate in domestic and foreign fairs, which contributes to the winning of new customers. In 2011 the fairs were AMPER, ELOSYS, ELEKTRO Moscow and MIDEST Paris. Our coolers make achievements on the European market and there is a perspective for their future application. This is also manifested by the total number, increasing each year. In 2010 we sold approximately 100 tonnes of cooling profiles and in 2011 it was over 200 tonnes. This year our primary objectives still are quality, extending the range of coolers according to customers' demands, extending of production facilities and modernisation of technological equipment.

Company's main production programme consists of:

- Aluminium coolers for electrical engineering industry (electrotechnics)
- Aluminium profiles for LED lights
- Customer profiles
- Production and selling of aluminium profiles
- Aluminium dividing on automatic saws
- Aluminium treatment on the CNC machines
- Aluminium welding in the protective atmosphere
- Eloxing – surface treatment of aluminium profiles through anodic oxidation

Aluminium ...

Is the universal, light and at the same time solid material, which can be manufactured, processed and compressed into a limitless number of shapes. Unique mechanical and chemical properties of aluminium, together with its easy mouldability, enable to make the product which may be widely applied in all branches of industry. The compressed profiles that we provide are made of aluminium and aluminium alloys AlMgSi 0.5, AlMgSi 0.7, respectively AlMgSi 1 by means of the heat compression technology. The profiles are compressed within tolerances according to the dimension specification EN 755.

Surface treatment of aluminium ...

Is an essential part of finished products. It will prevent natural oxidation of aluminium through the influence of atmospheric oxygen on aluminium which depends on the influence of the environment in which the product is situated. The influence of the time and environment also affects the oxide layer and physiognomy of the aluminium material. This in turn affects heat conductivity of the aluminium materials and colour stability. Apart from functionality it also meets aesthetic demands after application of the proper surface treatment. We perform the surface treatment in the shades: natural, black, gold, blue, red ...



Aluminium coolers ...

Aluminium coolers can be widely put into practice everywhere it is necessary to take away excess heat from electronic components. From this follows an irreplaceable need for aluminium coolers to achieve required functionality and reliability of electro-technic products and equipment. At present we provide you with more than 130 cooler profiles and we continually extend the range of products. New coolers are advertised on a regular basis on our website **www.gamaaluminium.sk**. In recent period we have extended the range of our products with coolers suitable for LED lights. We cooperate with customers when designing own coolers, so-called customer coolers. For understandable reasons we do not provide these products in this catalogue. We have more than 50 kinds of these profiles.

Our motto:

"Quality means that it is the customer who returns, not the goods."

Naši obchodní partneri:



www.eling.sk



www.ezk.cz



www.seen.com.pl



www.sos.sk



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