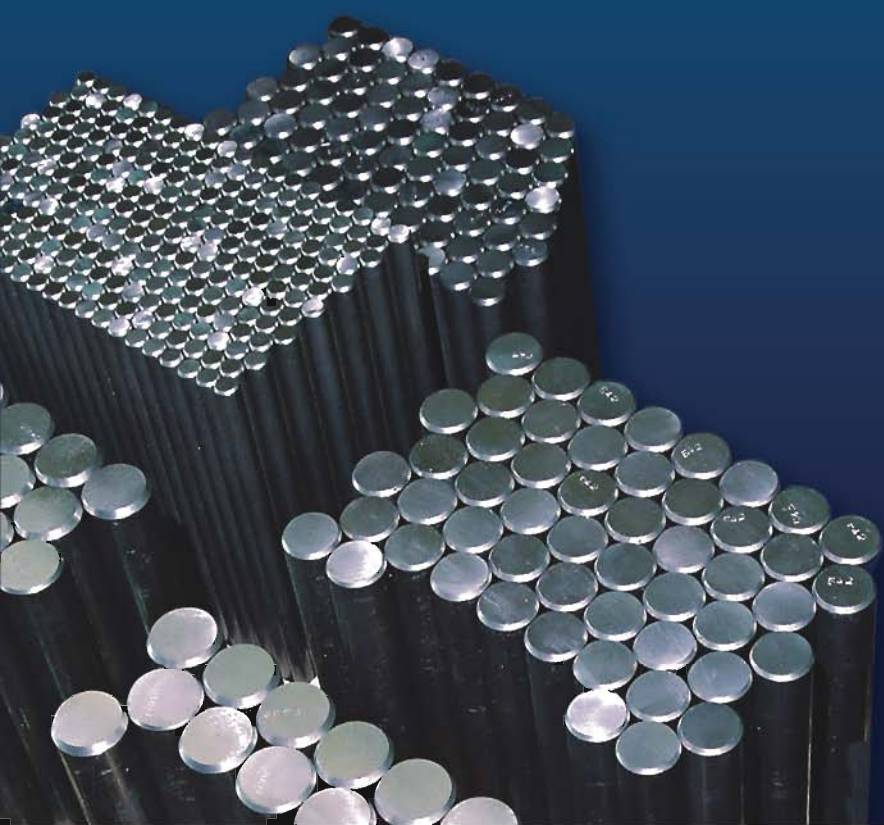
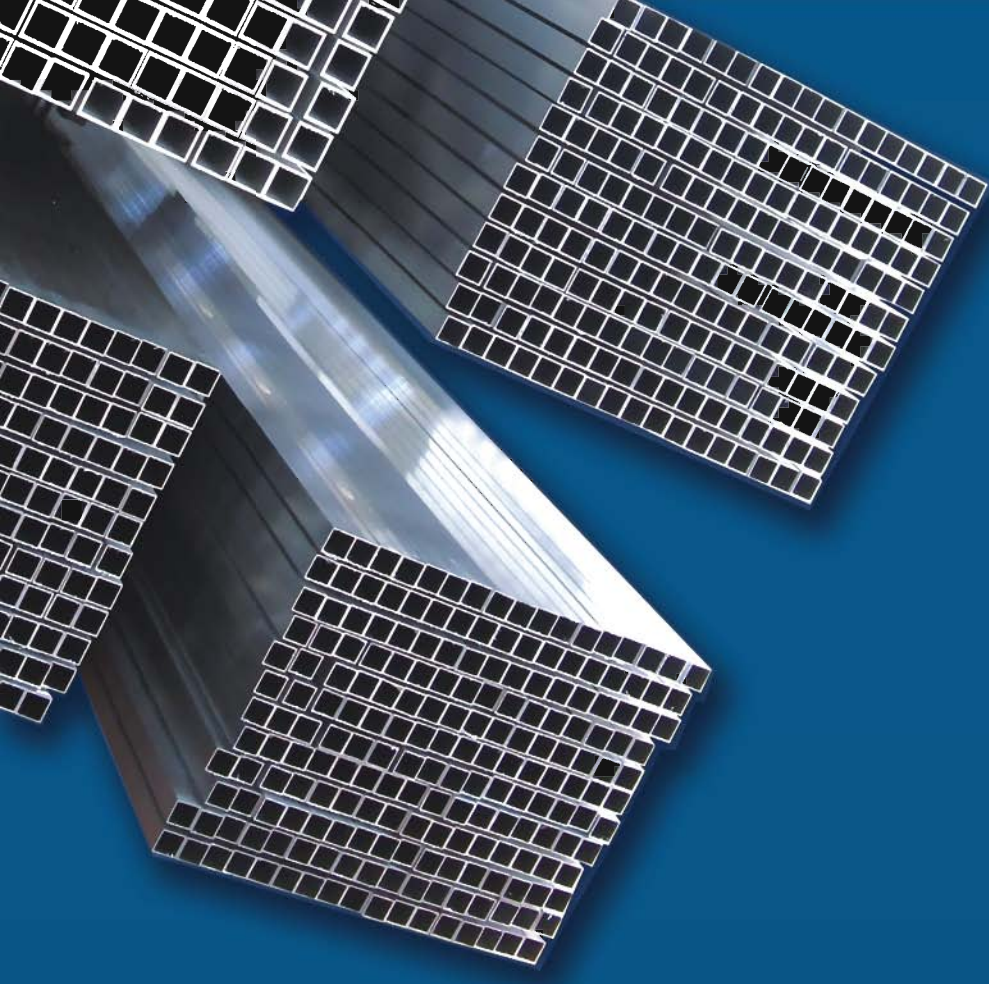


# ALUMINIUM PROFILE UND STANGEN ALUMINIUM PROFILES AND BARS







Information / Information

Rundstangen, Sechskantstangen, Vierkantstangen /  
Round, Hexagonal, Square bars

Flachprofile / Flat bars

Winkelprofile / Angle Profiles

Rechteckrohre / Rectangular tubes

Quadratrohre / Square tubes

T, U, Z-Profil / T, U, Z-Profiles

Rund-Rohre / Round tubes

Zeichnungsprofile / Custom made Profiles





nissal-NEWMET



NISSAL ist ein der größten Strangpressenfabrik im Region von Süd-Ost Europa mit großer Erfahrung und sehr langer Tradition auf dem Gebiet der strang gepressten und gezogenen Aluminiumprodukte, Aluminiumkonstruktionen, Eloxierung und Pulverbeschichtung.

NISSAL startete die Betriebstätigkeit im Jahre 1955 in Nis, in süd-östliches Serbien. Nach Jahrzehnten der Entwicklung und Anlagen die Firma wurde ausfuhrorientiert mit ungefähr 50% des Einkommens verdient im Ausland, meist in den EU-Ländern. Zu den wichtigsten ausländischen Märkten, wo Nissal-Produkte gut bekannte Marke geworden sind, gehören: Deutschland, Österreich, Tschechische Republik, Italien, Griechenland, Russland, sowie Serbiens Nachbarländer.

Durch das Privatisationsverfahren in 2003 Nissal wurde Aktiengesellschaft unter Kontrolle der Firma "Domal Inzenjering" aus Belgrad, Serbien (91% der Aktien) nachdem bei Nissal die Anlagen in Höhe von über 20 Mil.€ gemacht wurden.

#### **Hauptprodukte und Dienstleistungen:**

##### **Stranggepresste und gezogene Aluminiumstangen**

(rund, sechskant, vierkant und rechteckig) aus Legierungen 2007, 2015B, 6082, 6012, 2011  
Rundstangendurchmesser: 10 mm – 120 mm,  
Seitenlänge von vierkant und rechteckig Stangen von 10 mm – 36 mm und Schlüsselweite sechskant Stangen: 10mm – 36 mm;

**Alu-profilen in Standardausführung, Architekturausführung und nach Kundenzeichen** aus Legierungen 6060 und 6082 (sehr lange Tradition der Ausfuhr nach EU-Länder)

##### **Oberflächenbehandlung der Alu-Profilen mit dekorative oder Schutz – wirkung (Eloxierung und Pulverbeschichtung)**

Vollkommen neue automatische Eloxierungslinie mit einer Kapazität von 60.000 A mit elektrolytischem Färben für Profile und Bleche.  
Horizontale Linie für Pulverbeschichtung bietet reiche Auswahl von RAL-Farben;

**Aluminium Fassaden, Türe und Fenster** in unterschiedlicher Kombinationsausführung (Holz – Aluminium).

Wir haben die zahlreiche und eigene Fassaden entwickelt (Klassische-, Pannel- und Ganzglas-Fassade)

Die Geschäftstätigkeit auf diesem Gebiet schafft jährliches Einkommen von 15 Mil. €;

**Beschlag und Zubehör-** ( u.a. Dreh- und Drehklippbeschläge) für Türe und Fenstern aus Al oder Zn-Druckgussteilen.

#### **Technische Ausrüstung**

1. Die Gießerei zum Gießen der Pressbarren aus der Legierungen der Serie 2xxx, 3xxx, 4xxx, 5xxx und 6xxx mit der Kapazität von 800 Tonnen der monatlichen Produktion;

2. Die Presse 31 MN mit folgendem Herstellungsprogramm:

- die Herstellung der Alu-halberzeugnisse in aller Legierungen der Serie 2xxx und 6xxx:  
Rundtangem ueber Ø 10 bis 120 mm,  
Sechs- und Vierkantstangen ueber SW(Schlüsselweiten) 10 bis SW 36 mm und  
Rohren ueber Ø 30 bis 200 mm, Wanddicke ueber 1mm

- die Herstellung der Alu-profile in Legierungen 6060 und 6082

Durchmesser des Umschreibender Kreis bis Ø 250 mm, mit der Wanddicke ab 1 mm.

3. Die Presse 15 MN zur Herstellung der Profile in der Legierungen 6060 und 6082;

Durchmesser des Umschreibenden Kreis bis Ø 130 mm und mit der Wanddicke ab 1,2 mm.

Rohren ueber Ø 20 bis 90 mm, die Wanddicke ueber 1mm

4. Horizontale Linie zur Plastifizierung der Alu-Profile mit der Kapazität von 500 Tonnen der monatlichen Produktion;

5. Völlig automatisierte Produktionslinie zum Eloxieren der Profile der Leistung von 60.000 A, mit der Kapazität von 600 Tonnen der monatlichen Produktion. In der linie werden verschiedene Verfahren angewendet, z.B. elektrochemische Färbung in Naturfarbe oder in Bronze-, Braun-, Schwarz- oder Goldfarben

6. Die Abteilung „ der Konstruktion“ mit folgenden Technologien:

- Automatische Linie zum Glasschneiden und Herstellung der Glaspaneele;
- Bearbeitungszentrum zum Schneiden und Vorbereitung der Profile zur Fenster-, Fassaden- und Türenkonstruktionen;

- Bearbeitungszentrum zum Schneiden und Vorbereitung der Kompositkassetten;

- Die Kapazität der Abteilung: 5000 m<sup>2</sup> der monatlichen Produktion von Fertigkonstruktionen

7. Die Pressen zum Druckgussteile:

- Kaltkammer- Druckgiessmaschine fuer Alu-legierungen mit der Stärke von 1800 kN

- Warmkammer- Druckgiessmaschine fuer Zink-legierungen mit der Stärke von 1000 kN

8. Mehrere Zahl der Automaten zum Schneiden, Bohren und Bearbeitung des Aluminiums.

Das Endergebnis des großen Umfangs von Investitionen ist bedeutend nicht nur wegen der Steigerung des Produktionsumfangs, sondern auch für Hochqualität der Produkten, das man in einem konstanten Ausfuhrwachstum sehen kann, besonders in EU- Länder.

Kurzfristiger Plan der Firma ist die Steigerung der Verkaufsverträge wie Folgendes:

- neue Geschäfte zur Herstellung der Aluminium-Fassade in den EU-Ländern , in den Ländern des Fernen Ostens und im Russland;

- die Herstellung der Aluminiumstängen im doppel-grossen Umfang nach Installierungbeendigung neue Ausrüstung;

- die Steigerung des oberflächlichen Schutzes und Verbesserung des dekorativen Aussehens der Profile nach der erfolgreich beendeten Instalation der neuen Produktionslinie zum Eloxieren.





nissal-NEWMET

NISSAL is one of the major extrusion factories in the region of South East Europe, with great experience and very long tradition in the field of extruded aluminium and drawn products, aluminium constructions, anodizing and powder coating.

NISSAL started its production activities in the year 1955 in Nis, in the southeast of Serbia. After decades of development and investments, it has become an export oriented company with approximately 50% of its turnover realized abroad, mainly in the EU Countries. The most important foreign markets where Nissal's products have become a remarkable brand are: Germany, Austria, Czech Republic, Italy, Greece, Russia, and neighbouring countries.

After successful privatization process in 2003, Nissal has increased the amount of investment in equipment and building which resulted in increase in production volume. In past six years, Nissal has made investment in the amount of more than 25 mil. EUR.

#### **Main products and services:**

**Aluminium extruded and drawn bars** (round hexagonal and square) in alloys 2xxx and 6xxx series (other series are also possible). Most frequent alloys are: 2007, 2015B, 6082, 6012, 2011. Diameter for round bars: 10 mm – 120 mm, for square and hexagonal: 10 mm – 36 mm;

**Aluminium standard, architectural and profiles according to the drawing** in alloy 6060 and 6082 (very long tradition in export to EU countries);

**Aluminium facades, doors and windows** in various combination (also wood – aluminium). Nissal produces all types of facades: glazed curtain walls, structural, semi structural, panel type of facade. Usual business activities on this field are in the yearly amount of 15 mil. €;

**Aluminium surface protection - Anodizing and Powder-coating** Completely new line fully automatized anodizing plant of capacity of 60.000 A with electrocolouring process for anodizing profiles, and sheets length up to 7,5 meter. Powder - coating horizontal line with a lot of variations of RAL colours, with profile and sheets length up to 7 meter;

**Fittings and accessories** of cold casting parts for doors, windows and facades, anodized and powder coated.

#### **Technical data:**

1. Billet casting machine for producing of aluminium billets in 2xxx and 6xxx series, with monthly capacity of 800 tons;
2. Press 31 MN with the following production program:
  - a. production of aluminium bars in 2xxx and 6xxx series;
  - b. production of aluminium profiles in alloys 6060 and 6082, wall thickness up to 1 mm.
3. Press 15 MN for aluminium profiles production in alloy 6060 and 6082;
4. Horizontal powder-coating line with monthly capacity of 500 tons;
5. Fully automatized anodizing line of 60.000 A, capacity of 600 tons per month. First the surface of the profiles is brushed and after that the process of satining or sandblasting, with various colors is carried out;
6. Plant for aluminium constructions is fully automatized with the following equipment and technology:
  - a. automatic line for glass cutting and production of glass pannels;
  - b. machining center for cutting and preparing of the profiles for doors, windows and facades;
  - c. machining center for cutting and preparing of composite material
 Monthly capacities of this plant is approximately 5.000 m<sup>2</sup> of finished constructions;
7. Two cold casting machines
8. Various equipment for cutting and machining of aluminium profiles.

The result of great investments is not only reflected in production quantities, but also, in the high quality of products and constant growth of export, mainly to EU countries.

NISSAL's short term plan is to increase its revenues and production capacities in:

- new projects in production and installation of aluminium facades in EU, Russian Federation and Far East;
- Increase in aluminium bars production, due to finished investment in press and equipment before and after the press;;
- Increase of anodizing of the profiles and sheets with new installed anodizing line.





# I Meistens legierung / Most frequent alloys

EN 573-3  
EN AW-2007 [AlCu4PbMgMn]  
EN AW-2011 [AlCu6BiPb]  
EN AW-6012 [AlMgSiPb]  
EN AW-6082 [AlSi1MgMn]

| PRODUKTIONS MÖGLICHKEITEN/<br>PRODUCT RANGE/STANGEN PROGRAMM | Gezogen Stangen<br>Drawn bars | Gepreßt Stangen<br>Extruded bars |
|--------------------------------------------------------------|-------------------------------|----------------------------------|
| Rund stangen/Round bars ●                                    |                               |                                  |
| Von/Range 10-80 mm                                           | ●                             | ●                                |
| Von/Range 80-125 mm                                          |                               | ●                                |
| Sechskant stangen/Hexagonal bars ⬡                           |                               |                                  |
| Von/Range 10-36 mm                                           | ●                             | ●                                |
| Vierkant stangen/Square bars ■                               |                               |                                  |
| Von/Range 10x10 - 36x36 mm                                   | ■                             | ■                                |

Minimum menge per dimension/Minimum quantity per dimension: 500 kg  
Lange/Length: 3.000 mm, toleranz/tolerance -100/+100 mm.

Po zahtevu kupca možemo proizvesti i ostale legure iz serije:

- 2 xxx
- 5 xxx
- 6 xxx

According to the costumers request, we are able to produce other alloys series:

- 2 xxx
- 5 xxx
- 6 xxx

Rundstangen, Sechskantstangen, Vierkantstangen /  
Round, Hexagonal, Square bars







# Flachprofile / Flat bars

Legierung / Alloy: EN AW-6060  
Toleranz / Tolerance: EN 755-5

| Number | B  | A  | Kg/m'  | NISSAL Code |
|--------|----|----|--------|-------------|
|        | mm | mm |        |             |
| 1      | 10 | 4  | 0.108  | M.0659      |
| 2      | 12 | 10 | 0.324  | x           |
| 3      | 15 | 2  | 0.081  | M.0669      |
| 4      | 15 | 3  | #NAME? | M.5263      |
| 5      | 15 | 4  | 0.162  | M.5245      |
| 6      | 15 | 8  | 0.324  | M.5201      |
| 7      | 18 | 10 | 0.486  | x           |
| 8      | 20 | 3  | 0.162  | M.0683      |
| 9      | 20 | 6  | 0.324  | M.5368      |
| 10     | 20 | 5  | 0.270  | M.0685      |
| 11     | 20 | 10 | 0.540  | M.0688      |
| 12     | 20 | 12 | 0.648  | M.5324      |
| 13     | 20 | 15 | 0.810  | M.5238      |
| 14     | 25 | 3  | 0.203  | M.5209      |
| 15     | 25 | 4  | 0.270  | M.3574      |
| 16     | 25 | 5  | 0.338  | M.0695      |
| 17     | 25 | 6  | 0.405  | M.5329      |
| 18     | 25 | 7  | 0.473  | M.4340      |
| 19     | 25 | 8  | 0.540  | M.5314      |
| 20     | 25 | 10 | 0.675  | M.5264      |
| 21     | 25 | 12 | 0.810  | M.0699      |
| 22     | 25 | 15 | 1.013  | M.5303      |
| 23     | 25 | 20 | 1.350  | M.5292      |
| 24     | 28 | 7  | 0.529  | M.5301      |
| 25     | 30 | 2  | 0.162  | M.5325      |
| 26     | 30 | 3  | 0.243  | M.3149      |
| 27     | 30 | 4  | 0.324  | M.5281      |
| 28     | 30 | 5  | 0.405  | M.5177      |
| 29     | 30 | 6  | 0.486  | M.0706      |
| 30     | 30 | 8  | 0.648  | M.0647      |
| 31     | 30 | 10 | 0.810  | M.5186      |
| 32     | 30 | 12 | 0.972  | M.5282      |
| 33     | 30 | 15 | 1.215  | M.4332      |

# Flachprofile / Flat bars



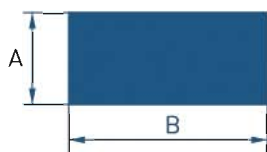




# Flachprofile / Flat bars

Legierung / Alloy:  
Toleranz / Tolerance:

EN AW-6060  
EN 755-5



| Number | B  | A  | Kg/m' | NISSAL Code |
|--------|----|----|-------|-------------|
|        | mm | mm |       |             |
| 34     | 30 | 20 | 1.620 | M.5283      |
| 35     | 35 | 5  | 0.473 | M.0711      |
| 36     | 35 | 15 | 1.418 | M.3133      |
| 37     | 40 | 2  | 0.216 | M.5208      |
| 38     | 40 | 3  | 0.324 | M.0716      |
| 39     | 40 | 4  | 0.432 | M.0717      |
| 40     | 40 | 5  | 0.540 | M.5187      |
| 41     | 40 | 6  | 0.648 | M.3353      |
| 42     | 40 | 8  | 0.864 | M.5178      |
| 43     | 40 | 10 | 1.080 | M.3352      |
| 44     | 40 | 12 | 1.296 | M.5248      |
| 45     | 40 | 15 | 1.620 | M.1816      |
| 46     | 40 | 20 | 2.160 | M.3935      |
| 47     | 40 | 25 | 2.700 | M.5336      |
| 48     | 40 | 30 | 3.240 | M.3206      |
| 49     | 45 | 10 | 1.215 | M.0746      |
| 50     | 45 | 25 | 3.038 | M.5420      |
| 51     | 50 | 2  | 0.270 | M.3150      |
| 52     | 50 | 3  | 0.405 | M.0723      |
| 53     | 50 | 4  | 0.540 | M.0724      |
| 54     | 50 | 5  | 0.675 | M.0725      |
| 55     | 50 | 8  | 1.080 | M.0727      |
| 56     | 50 | 10 | 1.350 | M.0728      |
| 57     | 50 | 12 | 1.620 | M.0729      |
| 58     | 50 | 15 | 2.025 | M.0730      |
| 59     | 50 | 20 | 2.700 | M.3339      |
| 60     | 50 | 25 | 3.375 | M.1567      |
| 61     | 50 | 30 | 4.050 | M.5249      |
| 62     | 55 | 5  | 0.743 | M.5257      |
| 63     | 55 | 10 | 1.485 | M.0731      |
| 64     | 60 | 3  | 0.486 | x           |
| 65     | 60 | 4  | 0.648 | M.0732      |
| 66     | 60 | 5  | 0.810 | M.0733      |
| 67     | 60 | 6  | 0.972 | M.0734      |
| 68     | 60 | 8  | 1.296 | M.0735      |
| 69     | 60 | 10 | 1.620 | M.0736      |

**Legierung / Alloy:**  
**Toleranz / Tolerance:**

**EN AW-6060**  
**EN 755-5**

| Number | B   | A  | Kg/m'  | NISSAL<br>Code |
|--------|-----|----|--------|----------------|
|        | mm  | mm |        |                |
| 70     | 60  | 12 | 1.944  | M.5265         |
| 71     | 60  | 15 | 2.430  | M.5239         |
| 72     | 60  | 20 | 3.240  | M.5101         |
| 73     | 60  | 25 | 4.050  | M.5250         |
| 74     | 60  | 30 | 4.860  | M.5188         |
| 75     | 70  | 5  | 0.945  | M.5299         |
| 76     | 70  | 10 | 1.890  | M.5240         |
| 77     | 70  | 12 | 2.268  | M.3276         |
| 78     | 70  | 20 | 3.780  | M.4094         |
| 79     | 75  | 7  | 1.418  | x              |
| 80     | 75  | 20 | 4.050  | M.3927         |
| 81     | 80  | 3  | 0.648  | M.5421         |
| 82     | 80  | 5  | 1.080  | M.5246         |
| 83     | 80  | 8  | 1.728  | M.0747         |
| 84     | 80  | 10 | 2.160  | M.0754         |
| 85     | 80  | 12 | 2.592  | M.5266         |
| 86     | 80  | 15 | 3.240  | M.5125         |
| 87     | 80  | 20 | 4.320  | M.5189         |
| 88     | 80  | 25 | 5.400  | M.5886         |
| 89     | 84  | 4  | 0.907  | M.1529         |
| 90     | 85  | 5  | 1.148  | M.3964         |
| 91     | 100 | 5  | 1.350  | M.3936         |
| 92     | 100 | 6  | 1.620  | M.5315         |
| 93     | 100 | 7  | 1.890  | x              |
| 94     | 100 | 8  | 2.160  | M.1988         |
| 95     | 100 | 10 | 2.700  | M.0753         |
| 96     | 100 | 12 | 3.240  | M.5216         |
| 97     | 100 | 15 | 4.050  | M.5080         |
| 98     | 110 | 80 | 23.760 | M.5504         |
| 99     | 120 | 6  | 1.944  | M.5843         |
| 100    | 120 | 8  | 2.592  | M.5293         |
| 101    | 120 | 10 | 3.240  | M.5363         |
| 102    | 120 | 15 | 4.860  | M.5369         |
| 103    | 130 | 7  | 2.457  | M.3037         |
| 104    | 145 | 70 | 27.405 | M.5506         |
| 105    | 150 | 10 | 4.050  | M.5861         |
| 106    | 150 | 50 | 20.250 | M.5494         |



# Flachprofile / Flat bars



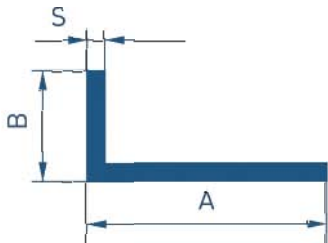




# Winkelprofile / Angle Profiles

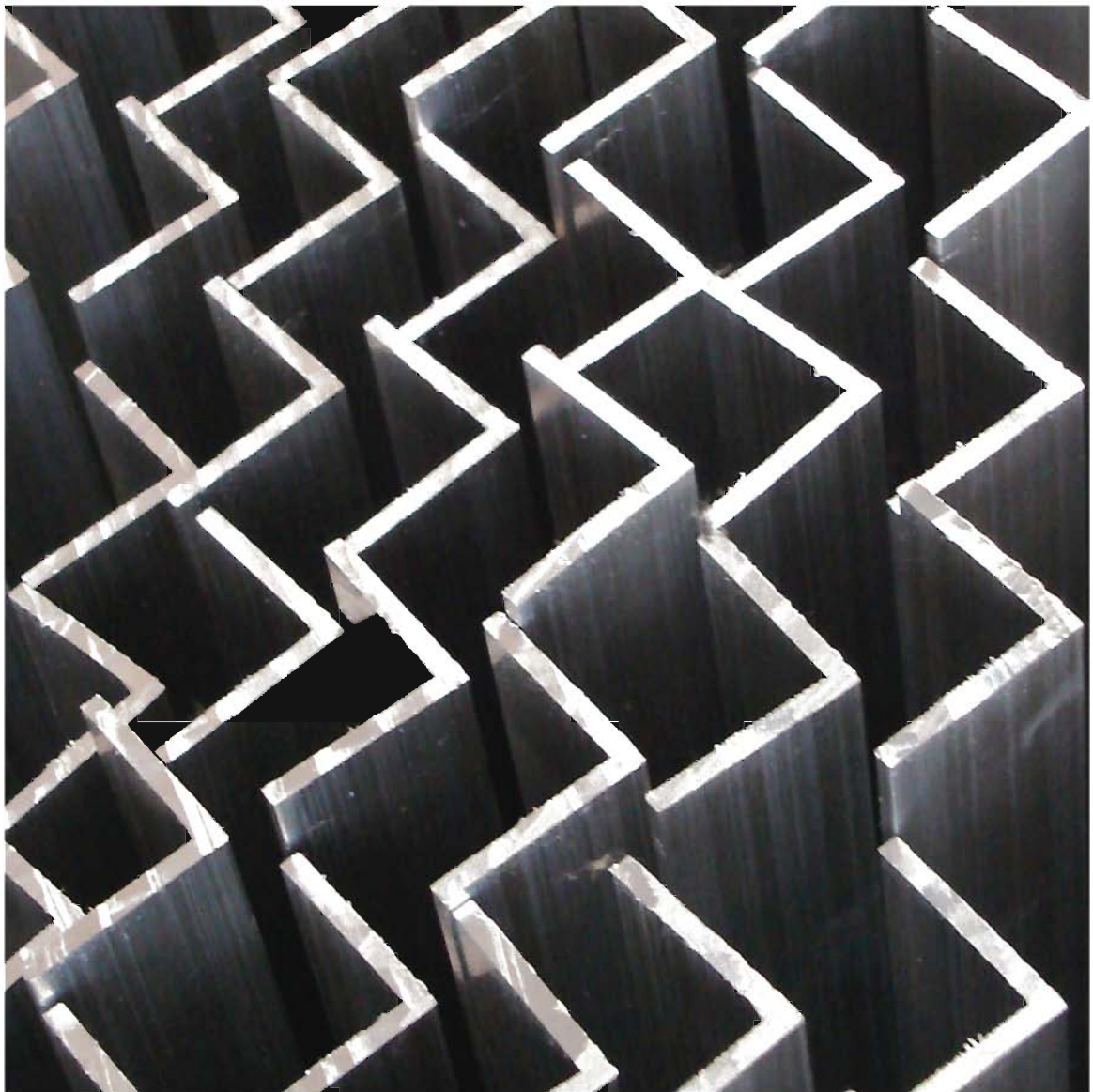
Legierung / Alloy: EN AW-6060  
Toleranz / Tolerance: EN 755-9

| Number | A  | B  | S   | Kg/m' | NISSAL Code |
|--------|----|----|-----|-------|-------------|
|        | mm | mm | mm  |       |             |
| 1      | 15 | 15 | 1.5 | 0.115 | M.5167      |
| 2      | 15 | 15 | 2   | 0.151 | M.5104      |
| 3      | 16 | 8  | 2   | 0.119 | x           |
| 4      | 20 | 10 | 2   | 0.151 | M.5105      |
| 5      | 20 | 15 | 2   | 0.178 | M.5110      |
| 6      | 20 | 15 | 3   | 0.259 | x           |
| 7      | 20 | 20 | 1   | 0.105 | x           |
| 8      | 20 | 20 | 1.1 | 0.116 | M.5460      |
| 9      | 20 | 20 | 1.5 | 0.156 | M.5342      |
| 10     | 20 | 20 | 2   | 0.205 | M.5168      |
| 11     | 20 | 20 | 3   | 0.300 | M.0996      |
| 12     | 25 | 25 | 1.5 | 0.196 | M.2143      |
| 13     | 25 | 25 | 1.8 | 0.234 | M.5328      |
| 14     | 25 | 25 | 2   | 0.259 | M.5169      |
| 15     | 25 | 25 | 3   | 0.381 | M.0883      |
| 16     | 30 | 15 | 2   | 0.232 | M.5175      |
| 17     | 30 | 20 | 2   | 0.259 | M.5221      |
| 18     | 30 | 20 | 2.5 | 0.321 | M.3792      |
| 19     | 30 | 20 | 3   | 0.381 | M.5247      |
| 20     | 30 | 20 | 4   | 0.497 | M.3226      |
| 21     | 30 | 30 | 1.1 | 0.175 | M.5466      |
| 22     | 30 | 30 | 2   | 0.313 | M.5170      |
| 23     | 30 | 30 | 3   | 0.462 | M.5222      |
| 24     | 30 | 30 | 4   | 0.605 | M.5316      |
| 25     | 30 | 30 | 5   | 0.743 | M.5451      |
| 26     | 35 | 35 | 2   | 0.367 | M.5365      |
| 27     | 40 | 20 | 1.3 | 0.206 | M.5461      |
| 28     | 40 | 20 | 2   | 0.313 | M.5109      |
| 29     | 40 | 20 | 4   | 0.605 | M.3227      |
| 30     | 40 | 30 | 2   | 0.367 | M.5788      |
| 31     | 40 | 30 | 5   | 0.878 | M.5339      |
| 32     | 40 | 35 | 2   | 0.394 | x           |
| 33     | 40 | 40 | 2   | 0.421 | M.5171      |
| 34     | 40 | 40 | 3   | 0.624 | M.5223      |
| 35     | 40 | 40 | 4   | 0.821 | M.3112      |
| 36     | 40 | 40 | 5   | 1.013 | M.5127      |
| 37     | 45 | 30 | 3   | 0.583 | x           |
| 38     | 45 | 45 | 2   | 0.475 | M.5172      |
| 39     | 50 | 20 | 2   | 0.367 | M.5176      |
| 40     | 50 | 25 | 2.5 | 0.489 | M.5377      |



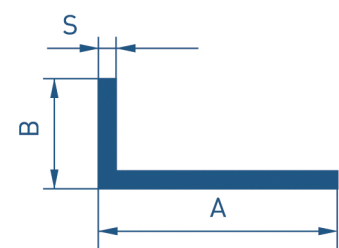
Winkelprofile / Angle Profiles





Legierung / Alloy: **EN AW-6060**  
Toleranz / Tolerance: **EN 755-9**

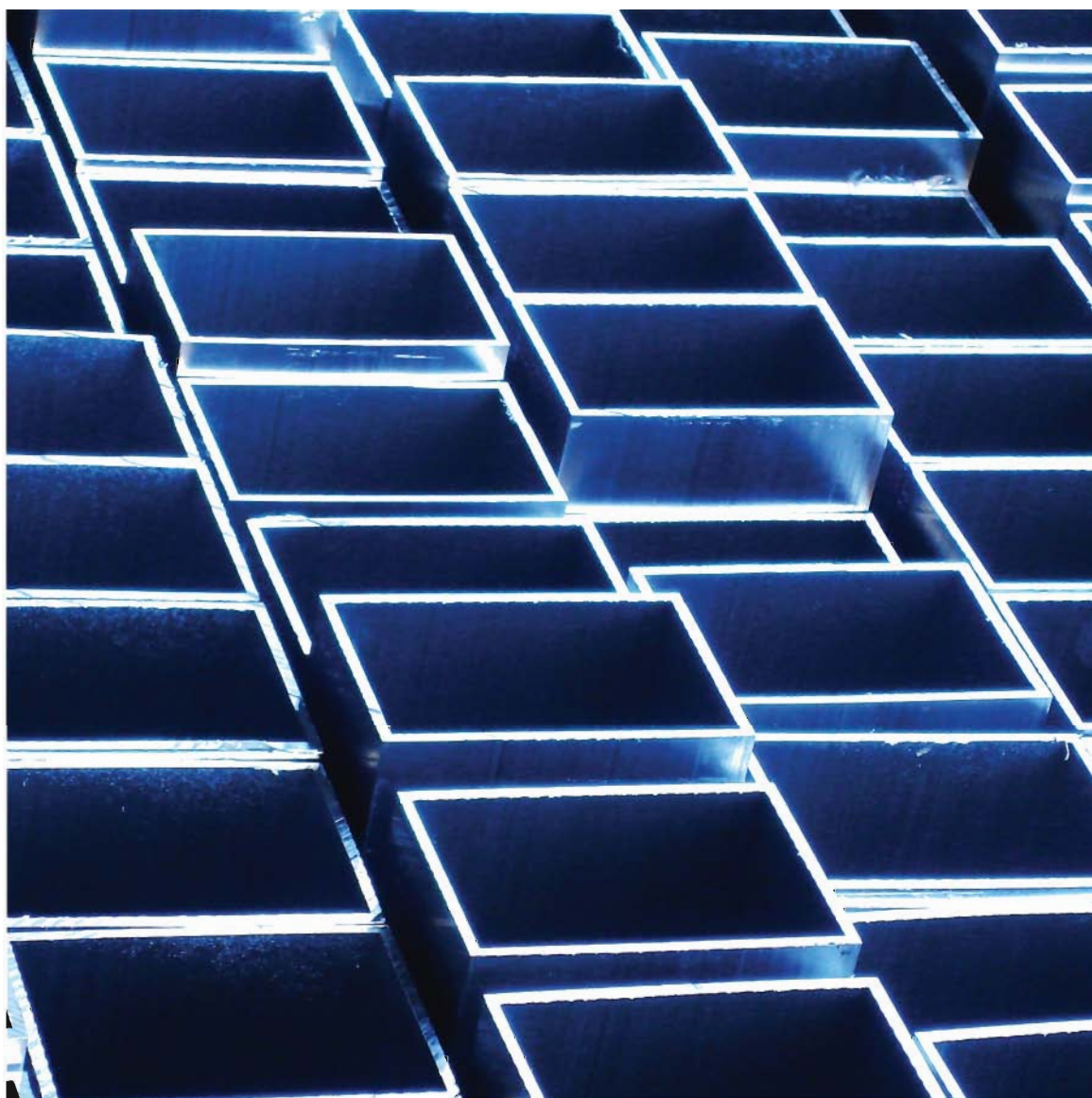
| Number | A   | B   | S   | Kg/m' | NISSAL Code |
|--------|-----|-----|-----|-------|-------------|
|        | mm  | mm  | mm  |       |             |
| 41     | 50  | 20  | 2   | 0.367 | M.5176      |
| 42     | 50  | 25  | 2.5 | 0.489 | M.5377      |
| 43     | 50  | 25  | 3   | 0.583 | x           |
| 44     | 50  | 30  | 3   | 0.624 | M.5243      |
| 45     | 50  | 30  | 4   | 0.821 | M.3233      |
| 46     | 50  | 30  | 5   | 1.013 | M.5200      |
| 47     | 50  | 40  | 2   | 0.475 | M.5860      |
| 48     | 50  | 50  | 2   | 0.529 | M.5173      |
| 49     | 50  | 50  | 2.5 | 0.658 | M.5670      |
| 50     | 50  | 50  | 3   | 0.786 | M.5300      |
| 51     | 50  | 50  | 4   | 1.037 | M.3111      |
| 52     | 50  | 50  | 5   | 1.283 | M.3833      |
| 53     | 50  | 50  | 6   | 1.523 | M.5267      |
| 54     | 60  | 20  | 1.2 | 0.255 | M.5467      |
| 55     | 60  | 20  | 2   | 0.421 | M.5241      |
| 56     | 60  | 28  | 1.8 | 0.419 | x           |
| 57     | 60  | 30  | 6   | 1.361 | M.3228      |
| 58     | 60  | 35  | 2   | 0.502 | M.5210      |
| 59     | 60  | 40  | 3   | 0.786 | M.5457      |
| 60     | 60  | 40  | 5   | 1.283 | M.3835      |
| 61     | 60  | 60  | 2   | 0.637 | M.5174      |
| 62     | 60  | 60  | 4   | 1.253 | M.5123      |
| 63     | 60  | 60  | 5   | 1.553 | M.3832      |
| 64     | 60  | 60  | 6   | 1.847 | M.5330      |
| 65     | 60  | 60  | 8   | 2.419 | M.5317      |
| 66     | 70  | 20  | 2   | 0.475 | x           |
| 67     | 75  | 50  | 6   | 1.928 | M.3830      |
| 68     | 80  | 20  | 2   | 0.529 | M.5108      |
| 69     | 80  | 25  | 4   | 1.091 | M.3893      |
| 70     | 80  | 30  | 3   | 0.867 | x           |
| 71     | 80  | 40  | 4   | 1.253 | M.5452      |
| 72     | 80  | 50  | 6   | 2.009 | M.3831      |
| 73     | 80  | 52  | 8   | 2.678 | M.3273      |
| 74     | 80  | 80  | 10  | 4.050 | M.5346      |
| 75     | 90  | 40  | 4   | 1.361 | M.3234      |
| 76     | 100 | 20  | 1.3 | 0.417 | M.5468      |
| 77     | 100 | 50  | 5   | 1.958 | M.5102      |
| 78     | 100 | 60  | 6   | 2.495 | M.5847      |
| 79     | 100 | 100 | 10  | 5.130 | M.5020      |
| 80     | 120 | 60  | 6   | 2.819 | M5846       |



# Winkelprofile / Angle Profiles







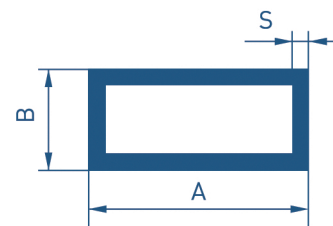
# Rechteckrohre / Rectangular tubes

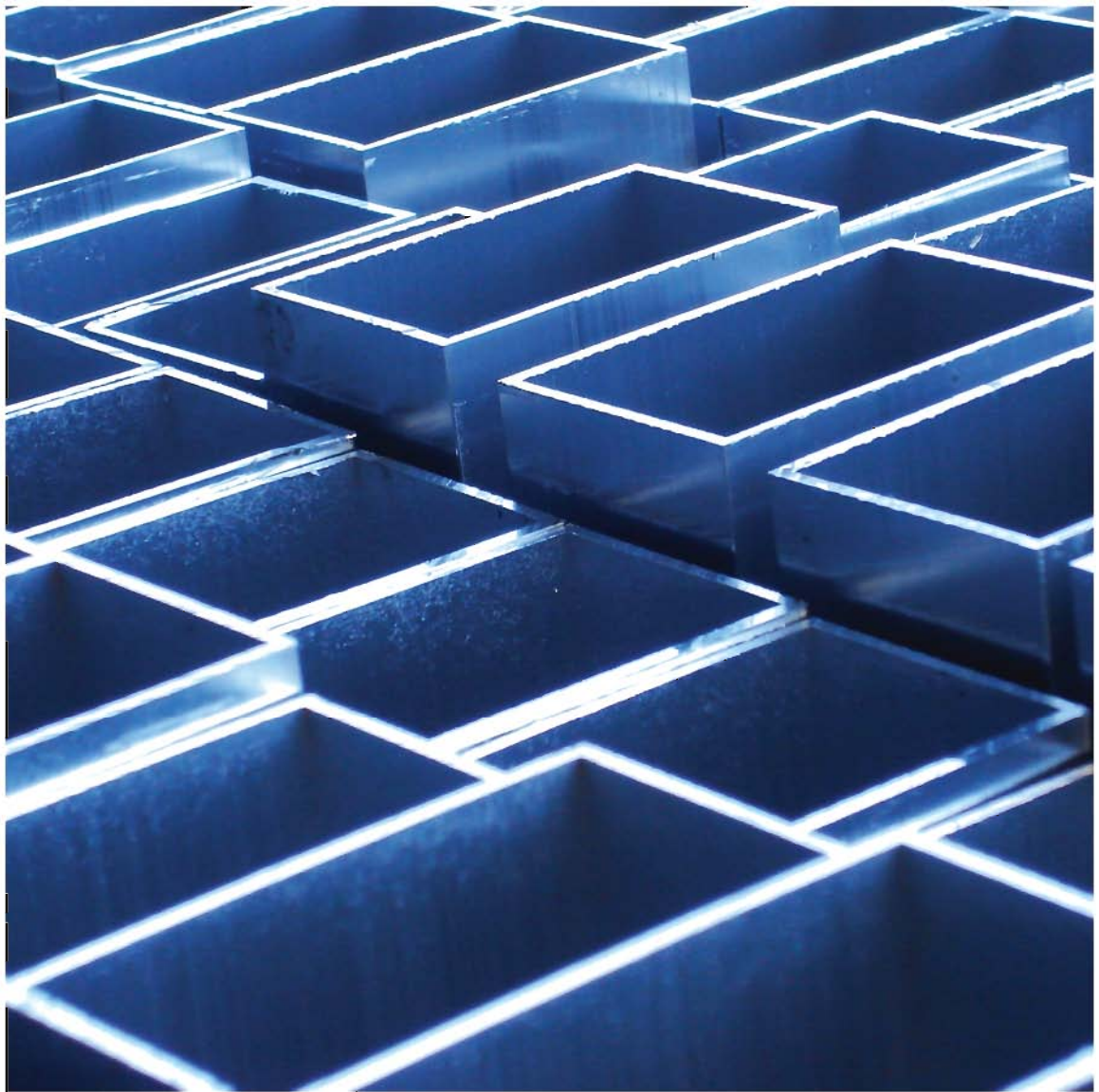
Legierung / Alloy: EN AW-6060

Toleranz / Tolerance: EN 755-8

| Number | A<br>mm | B<br>mm | S<br>mm | Kg/m' | NISSAL Code |
|--------|---------|---------|---------|-------|-------------|
| 1      | 20      | 10      | 1.5     | 0.219 | ŠP.1067     |
| 2      | 20      | 15      | 1.5     | 0.259 | ŠP.1182     |
| 3      | 30      | 15      | 2       | 0.443 | ŠP.1618     |
| 4      | 30      | 20      | 1.2     | 0.308 | ŠP.1815     |
| 5      | 30      | 20      | 2       | 0.497 | ŠP.1576     |
| 6      | 36      | 15      | 2       | 0.508 | ŠP.0658     |
| 7      | 40      | 15      | 2       | 0.551 | ŠP.1445     |
| 8      | 40      | 20      | 1.2     | 0.373 | ŠP.1816     |
| 9      | 40      | 20      | 1.5     | 0.462 | ŠP.1280     |
| 10     | 40      | 20      | 2       | 0.605 | ŠP.0716     |
| 11     | 40      | 20      | 2.5     | 0.743 | ŠP.1807     |
| 12     | 40      | 20      | 3       | 0.875 | ŠP.1585     |
| 13     | 40      | 25      | 2       | 0.659 | ŠP.2184     |
| 14     | 40      | 30      | 2       | 0.713 | ŠP.0749     |
| 15     | 40      | 30      | 3       | 1.037 | ŠP.1639     |
| 16     | 50      | 20      | 1.5     | 0.543 | ŠP.0857     |
| 17     | 50      | 20      | 2       | 0.713 | ŠP.1583     |
| 18     | 50      | 20      | 3       | 1.037 | ŠP.1738     |
| 19     | 50      | 25      | 2       | 0.767 | x           |
| 20     | 50      | 25      | 3       | 1.118 | ŠP.0744     |
| 21     | 50      | 30      | 2       | 0.821 | ŠP.1584     |
| 22     | 50      | 30      | 2.5     | 1.013 | ŠP.1641     |
| 23     | 50      | 30      | 3       | 1.199 | ŠP.0585     |
| 24     | 50      | 40      | 2.5     | 1.148 | ŠP.1642     |
| 25     | 60      | 20      | 1.3     | 0.543 | ŠP.1817     |
| 26     | 60      | 20      | 2       | 0.821 | ŠP.1643     |
| 27     | 60      | 30      | 2       | 0.929 | ŠP.1619     |
| 28     | 60      | 30      | 3       | 1.361 | ŠP.1644     |
| 29     | 60      | 34      | 3       | 1.426 | ŠP.1667     |
| 30     | 60      | 40      | 1.3     | 0.684 | ŠP.1818     |
| 31     | 60      | 40      | 2       | 1.037 | ŠP.1321     |
| 32     | 60      | 40      | 2.5     | 1.283 | ŠP.1806     |
| 33     | 60      | 40      | 3       | 1.523 | ŠP.1024     |
| 34     | 60      | 40      | 4       | 1.987 | ŠP.0746     |
| 35     | 60      | 50      | 4       | 2.203 | ŠP.0708     |
| 36     | 70      | 50      | 4       | 2.419 | ŠP.1586     |
| 37     | 80      | 20      | 1.3     | 0.684 | ŠP.1858     |
| 38     | 80      | 20      | 1.5     | 0.786 | ŠP.1264     |
| 39     | 80      | 20      | 2.0     | 1.037 | ŠP.1649     |
| 40     | 80      | 40      | 1.2     | 0.762 | ŠP.1382     |
| 41     | 80      | 40      | 1.7     | 1.070 | ŠP.0638     |
| 42     | 80      | 40      | 2       | 1.253 | ŠP.2229     |
| 43     | 80      | 40      | 2.5     | 1.553 | ŠP.1574     |
| 44     | 80      | 40      | 3       | 1.847 | ŠP.1668     |
| 45     | 80      | 40      | 4       | 2.419 | ŠP.1647     |
| 46     | 80      | 50      | 4       | 2.635 | ŠP.1648     |
| 47     | 80      | 60      | 4       | 2.851 | ŠP.2200     |
| 48     | 100     | 18      | 2       | 1.231 | ŠP.0234     |
| 49     | 100     | 40      | 4       | 2.851 | ŠP.0833     |
| 50     | 100     | 50      | 2       | 1.577 | ŠP.0735     |
| 51     | 100     | 50      | 5       | 3.780 | ŠP.2115     |
| 52     | 100     | 60      | 2       | 1.685 | ŠP.2169     |
| 53     | 120     | 20      | 2       | 1.469 | ŠP.2222     |

# Rechteckrohre / Rectangular tubes





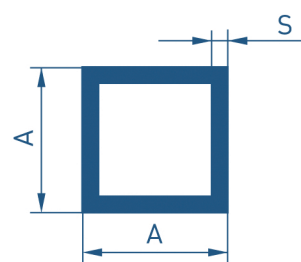


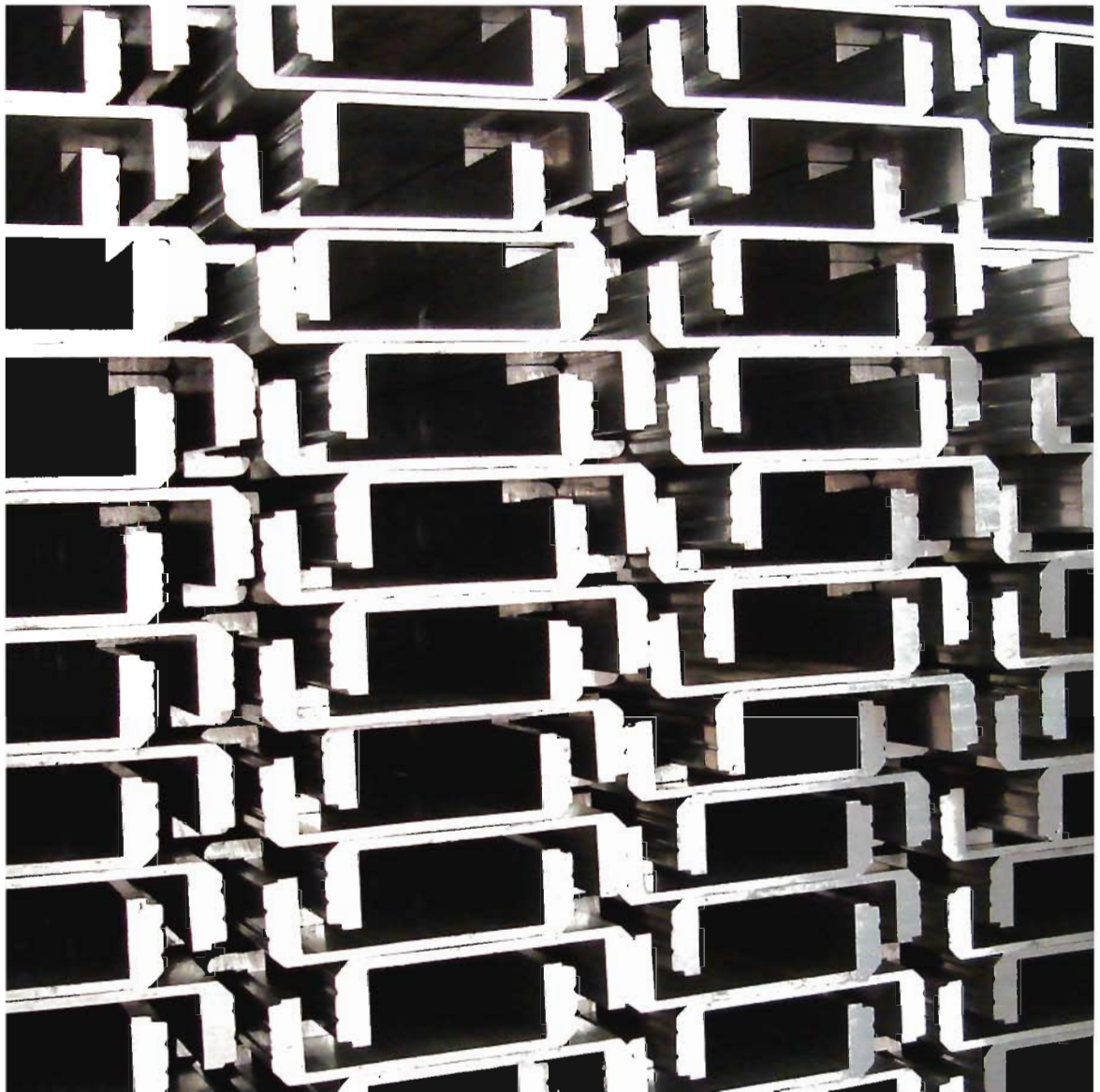
# Quadratrohre / Square tubes

Legierung / Alloy: EN AW-6060  
Toleranz / Tolerance: EN 755-8

| Number | A   | S   | Kg/m' | NISSAL Code |
|--------|-----|-----|-------|-------------|
|        | mm  | mm  |       |             |
| 1      | 15  | 1.5 | 0.219 | ŠP.1650     |
| 2      | 15  | 2   | 0.281 | ŠP.1864     |
| 3      | 20  | 1.2 | 0.244 | ŠP.1854     |
| 4      | 20  | 1.5 | 0.300 | ŠP.1651     |
| 5      | 20  | 2   | 0.389 | ŠP.0747     |
| 6      | 25  | 1.2 | 0.308 | ŠP.1820     |
| 7      | 25  | 1.5 | 0.381 | ŠP.2101     |
| 8      | 25  | 2   | 0.497 | ŠP.1252     |
| 9      | 30  | 1   | 0.313 | ŠP.1315     |
| 10     | 30  | 1.5 | 0.462 | ŠP.0970     |
| 11     | 30  | 2   | 0.605 | ŠP.0870     |
| 12     | 30  | 3   | 0.875 | ŠP.1616     |
| 13     | 35  | 2   | 0.713 | ŠP.0723     |
| 14     | 40  | 1.2 | 0.503 | ŠP.1821     |
| 15     | 40  | 1.5 | 0.624 | ŠP.0645     |
| 16     | 40  | 2   | 0.821 | ŠP.1253     |
| 17     | 40  | 2.5 | 1.013 | ŠP.1652     |
| 18     | 40  | 3   | 1.199 | ŠP.0751     |
| 19     | 40  | 4   | 1.555 | ŠP.1533     |
| 20     | 45  | 2   | 0.929 | ŠP.1617     |
| 21     | 50  | 1.3 | 0.684 | ŠP.1822     |
| 22     | 50  | 2   | 1.037 | ŠP.1569     |
| 23     | 50  | 3   | 1.523 | ŠP.1577     |
| 24     | 50  | 4   | 1.987 | ŠP.1540     |
| 25     | 60  | 1.4 | 0.886 | ŠP.1823     |
| 26     | 60  | 2   | 1.253 | ŠP.1451     |
| 27     | 60  | 3   | 1.847 | ŠP.1587     |
| 28     | 60  | 4   | 2.419 | ŠP.1535     |
| 29     | 80  | 2   | 1.685 | ŠP.1450     |
| 30     | 80  | 3   | 2.495 | ŠP.1575     |
| 31     | 80  | 4   | 3.283 | ŠP.1653     |
| 32     | 85  | 2.5 | 2.228 | ŠP.0684     |
| 33     | 100 | 2   | 2.117 | ŠP.1270     |
| 34     | 100 | 4   | 4.147 | ŠP.0750     |
| 35     | 100 | 5   | 5.130 | ŠP.2114     |

# Quadratrohre / Square tubes

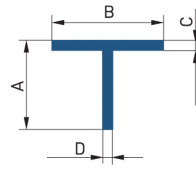




## T-Profile / T-Profles

Legierung / Alloy: EN AW-6060

Toleranz / Tolerance: EN 755-9

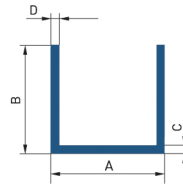


| Number | A<br>mm | B<br>mm | C<br>mm | D<br>mm | Kg/m' | NISSAL Code |
|--------|---------|---------|---------|---------|-------|-------------|
| 1      | 15      | 15      | 2       | 2       | 0.151 | x           |
| 2      | 20      | 20      | 2       | 2       | 0.205 | M.5366      |
| 3      | 30      | 30      | 3       | 3       | 0.462 | x           |
| 4      | 40      | 40      | 2       | 2       | 0.421 | M.5775      |
| 5      | 40      | 40      | 3       | 3       | 0.624 | x           |
| 6      | 40      | 40      | 4       | 4       | 0.821 | M.5244      |
| 7      | 50      | 50      | 5       | 5       | 1.283 | M.3836      |
| 8      | 60      | 60      | 6       | 6       | 1.847 | M.5290      |

## U-Profile / U-Profles

Legierung / Alloy: EN AW-6060

Toleranz / Tolerance: EN 755-9

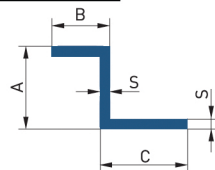


| Number | A<br>mm | B<br>mm | C<br>mm | D<br>mm | Kg/m'   | NISSAL Code |
|--------|---------|---------|---------|---------|---------|-------------|
| 1      | 10      | 10      | 2       | 2       | 0.1404  | M.0395      |
| 2      | 12      | 12      | 2       | 2       | 0.173   | M.5874      |
| 3      | 15      | 15      | 2       | 2       | 0.2214  | M.5294      |
| 4      | 20      | 20      | 2       | 2       | 0.3024  | M.5111      |
| 5      | 20      | 25      | 2       | 2       | 0.3564  | M.3174      |
| 6      | 25      | 25      | 2       | 2       | 0.3834  | M.5124      |
| 7      | 30      | 20      | 1.5     | 1.5     | 0.27135 | M.0257      |
| 8      | 30      | 20      | 2       | 2       | 0.3564  | M.5453      |
| 9      | 30      | 30      | 3       | 3       | 0.6804  | M.5510      |
| 10     | 40      | 20      | 1.5     | 1.5     | 0.31185 | x           |
| 11     | 40      | 20      | 1.7     | 1.7     | 0.35159 | x           |
| 12     | 40      | 20      | 2       | 2       | 0.4104  | M.5367      |
| 13     | 40      | 30      | 2       | 2       | 0.5184  | x           |
| 14     | 40      | 40      | 3       | 3       | 0.9234  | M.5509      |
| 15     | 40      | 40      | 4       | 4       | 1.2096  | x           |
| 16     | 44      | 52      | 10      | 10      | 3.456   | M.4377      |
| 17     | 50      | 30      | 4       | 4       | 1.1016  | M.4429      |
| 18     | 50      | 50      | 4       | 4       | 1.5336  | M.3225      |
| 19     | 60      | 30      | 4       | 4       | 1.2096  | M.5454      |
| 20     | 60      | 40      | 4       | 4       | 1.4256  | x           |
| 21     | 60      | 40      | 5       | 5       | 1.755   | M.3229      |
| 22     | 60      | 60      | 5       | 5       | 2.295   | M.5844      |
| 23     | 60      | 60      | 6       | 6       | 2.7216  | M.5334      |
| 24     | 80      | 10      | 2       | 2       | 0.5184  | x           |
| 25     | 80      | 40      | 4       | 4       | 1.6416  | M.5419      |
| 26     | 80      | 50      | 5       | 5       | 2.295   | M.5338      |
| 27     | 120     | 60      | 5       | 5       | 3.105   | M.5845      |

## Z-Profile / Z-Profles

Legierung / Alloy: EN AW-6060

Toleranz / Tolerance: EN 755-9



| Number | A<br>mm | B<br>mm | C<br>mm | S<br>mm | Kg/m' | NISSAL Code |
|--------|---------|---------|---------|---------|-------|-------------|
| 1      | 16      | 20      | 17      | 5       | 0.580 | x           |
| 2      | 40      | 40      | 40      | 3       | 0.980 | x           |
| 3      | 43      | 18      | 18      | 3       | 0.630 | x           |
| 4      | 50      | 18      | 18      | 3       | 0.648 | M.5458      |
| 5      | 60      | 24      | 24      | 2       | 0.600 | x           |

T, U, Z-Profile / T, U, Z-Profiles







## Rund-Rohre / Round tubes

Legierung / Alloy: EN AW-6060

Toleranz / Tolerance: EN 755-8

Allgemeine Technische Möglichkeiten / General parameters:

$25\text{mm} \leq D \leq 60\text{mm}$

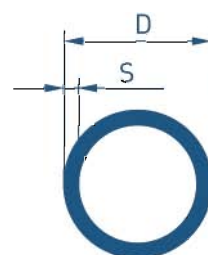
$S \geq 1.5\text{mm}$

Gewicht d. Rohre /Tube weight  $\geq 450\text{ gr/m'}$

Bzgl. unserer Produktionsmöglichkeiten senden Sie uns bitte jederzeit Ihre entsprechende Anfrage.

For production possibility please do not hesitate to send us your inquiry.

| Number | D  | S   | Kg/m' |
|--------|----|-----|-------|
|        | mm | mm  |       |
| 1      | 18 | 3.5 | 0.430 |
| 2      | 20 | 1.6 |       |
| 3      | 20 | 3   | 0.432 |
| 4      | 21 | 1.5 | 0.248 |
| 5      | 22 | 2   | 0.339 |
| 6      | 24 | 1.5 | 0.289 |
| 7      | 24 | 2   | 0.373 |
| 8      | 24 | 3   | 0.534 |
| 9      | 25 | 1.5 | 0.299 |
| 10     | 25 | 2   | 0.390 |
| 11     | 25 | 2.5 | 0.447 |
| 12     | 25 | 3   | 0.560 |
| 13     | 25 | 3.5 | 0.638 |
| 14     | 25 | 4.5 | 0.782 |
| 15     | 27 | 1.5 | 0.324 |
| 16     | 27 | 2   | 0.424 |
| 17     | 27 | 3   | 0.610 |

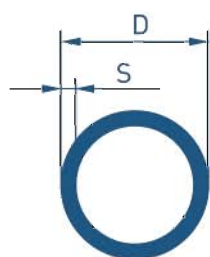


# Rund-Rohre / Round tubes

Legierung / Alloy:  
Toleranz / Tolerance:

EN AW-6060  
EN 755-8

| Number | D  | S   | Kg/m' |
|--------|----|-----|-------|
|        | mm | mm  |       |
| 18     | 27 | 4   | 0.780 |
| 19     | 28 | 1.5 | 0.337 |
| 20     | 28 | 2   | 0.441 |
| 21     | 28 | 2.5 | 0.540 |
| 22     | 28 | 3   | 0.636 |
| 23     | 28 | 4   | 0.814 |
| 24     | 28 | 5   | 0.975 |
| 25     | 29 | 3   | 0.661 |
| 26     | 30 | 1.6 | 0.385 |
| 27     | 30 | 2   | 0.475 |
| 28     | 30 | 2.5 | 0.583 |
| 29     | 30 | 3   | 0.687 |
| 30     | 30 | 4   | 0.882 |
| 31     | 30 | 5   | 1.060 |
| 32     | 30 | 6   | 1.221 |
| 33     | 31 | 1.5 | 0.375 |
| 34     | 31 | 2.5 | 0.604 |
| 35     | 32 | 1.5 | 0.388 |
| 36     | 32 | 2   | 0.509 |
| 37     | 32 | 2.5 | 0.625 |
| 38     | 32 | 3   | 0.738 |
| 39     | 32 | 3.5 | 0.845 |
| 40     | 32 | 4   | 0.950 |
| 41     | 32 | 5   | 1.145 |
| 42     | 32 | 5.5 | 1.126 |
| 43     | 32 | 6   | 1.323 |
| 44     | 33 | 3   | 0.763 |
| 45     | 33 | 3.5 | 0.875 |
| 46     | 33 | 4   | 0.983 |
| 47     | 33 | 5   | 1.187 |
| 48     | 34 | 2   | 0.543 |
| 49     | 34 | 5.5 | 1.329 |
| 50     | 36 | 2   | 0.577 |
| 51     | 36 | 3   | 0.839 |
| 52     | 36 | 4   | 1.085 |

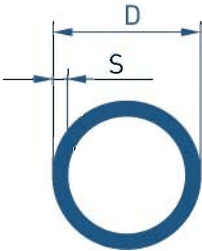




Legierung / Alloy: EN AW-6060  
Toleranz / Tolerance: EN 755-8

| Number | D  | S   | Kg/m' |
|--------|----|-----|-------|
|        | mm | mm  |       |
| 53     | 36 | 6   | 1.526 |
| 54     | 36 | 6.5 | 1.626 |
| 55     | 36 | 7.5 | 1.812 |
| 56     | 36 | 8.5 | 1.982 |
| 57     | 37 | 3.5 | 0.994 |
| 58     | 38 | 1.5 | 0.460 |
| 59     | 38 | 2   | 0.610 |
| 60     | 38 | 3   | 0.890 |
| 61     | 38 | 4   | 1.153 |
| 62     | 38 | 10  | 2.374 |
| 63     | 39 | 2   | 0.627 |
| 64     | 40 | 1.5 | 0.490 |
| 65     | 41 | 2   | 0.661 |
| 66     | 42 | 2   | 0.678 |
| 67     | 42 | 2.5 | 0.837 |
| 68     | 42 | 3   | 0.992 |
| 69     | 42 | 3.5 | 1.142 |
| 70     | 42 | 4   | 1.289 |
| 71     | 42 | 5   | 1.568 |
| 72     | 42 | 8.5 | 2.414 |
| 73     | 42 | 12  | 3.052 |
| 74     | 44 | 2   | 0.712 |
| 75     | 44 | 3.5 | 1.202 |
| 76     | 45 | 1.5 | 0.553 |
| 77     | 45 | 2   | 0.729 |
| 78     | 45 | 2.5 | 0.901 |
| 79     | 45 | 4   | 1.390 |
| 80     | 45 | 5   | 1.696 |
| 81     | 45 | 7.5 | 2.384 |
| 82     | 45 | 8.5 | 2.630 |
| 83     | 45 | 9   | 2.747 |
| 84     | 45 | 10  | 2.967 |
| 85     | 46 | 2   | 0.745 |
| 86     | 46 | 3   | 1.094 |
| 87     | 46 | 4   | 1.424 |

# Rund-Rohre / Round tubes

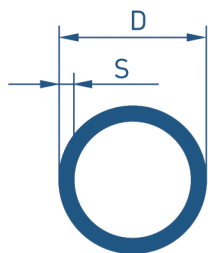


# Rund-Rohre / Round tubes

Legierung / Alloy:  
Toleranz / Tolerance:

EN AW-6060  
EN 755-8

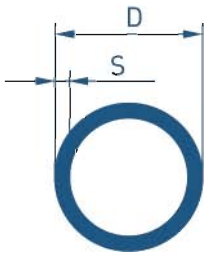
| Number | D  | S    | Kg/m' |
|--------|----|------|-------|
|        | mm | mm   |       |
| 88     | 47 | 3    | 1.119 |
| 89     | 48 | 1.5  | 0.591 |
| 90     | 48 | 2    | 0.780 |
| 91     | 48 | 2.5  | 0.964 |
| 92     | 48 | 3    | 1.145 |
| 93     | 48 | 4    | 1.492 |
| 94     | 48 | 10   | 3.222 |
| 95     | 50 | 1.5  | 0.617 |
| 96     | 50 | 1.8  | 0.736 |
| 97     | 50 | 2    | 0.814 |
| 98     | 50 | 2.5  | 1.007 |
| 99     | 50 | 4    | 1.560 |
| 100    | 50 | 5    | 1.908 |
| 101    | 50 | 6    | 2.238 |
| 102    | 50 | 7.5  | 2.702 |
| 103    | 50 | 8    | 2.849 |
| 104    | 50 | 10   | 3.391 |
| 105    | 50 | 10.5 | 3.516 |
| 106    | 50 | 12   | 3.866 |
| 107    | 50 | 15   | 4.451 |
| 108    | 51 | 2    | 0.831 |
| 109    | 51 | 3    | 1.221 |
| 110    | 51 | 11.5 | 3.851 |
| 111    | 52 | 3    | 1.246 |
| 112    | 52 | 3.5  | 1.439 |
| 113    | 52 | 6    | 2.340 |
| 114    | 52 | 7    | 2.671 |
| 115    | 52 | 10.5 | 3.694 |
| 116    | 52 | 11   | 3.824 |
| 117    | 52 | 13.5 | 4.406 |
| 118    | 53 | 4    | 1.662 |
| 119    | 53 | 5    | 2.035 |
| 120    | 54 | 2    | 0.882 |
| 121    | 54 | 6    | 2.442 |
| 122    | 54 | 9    | 3.434 |



Legierung / Alloy: EN AW-6060  
Toleranz / Tolerance: EN 755-8

| Number | D   | S   | Kg/m' |
|--------|-----|-----|-------|
|        | mm  | mm  |       |
| 123    | 55  | 2   | 0.899 |
| 124    | 55  | 2.5 | 1.113 |
| 125    | 55  | 5   | 2.120 |
| 126    | 55  | 10  | 3.815 |
| 127    | 55  | 12  | 4.375 |
| 128    | 55  | 15  | 5.087 |
| 129    | 56  | 5.5 | 2.355 |
| 130    | 56  | 3   | 1.348 |
| 131    | 56  | 12  | 4.476 |
| 132    | 57  | 3.5 | 1.588 |
| 133    | 58  | 2   | 0.950 |
| 134    | 58  | 6   | 2.645 |
| 135    | 58  | 12  | 4.680 |
| 136    | 65  | 2   | 1.063 |
| 137    | 65  | 2.5 | 1.325 |
| 138    | 70  | 2   | 1.153 |
| 139    | 70  | 2.5 | 1.431 |
| 140    | 70  | 3   | 1.704 |
| 141    | 70  | 6   | 3.256 |
| 142    | 70  | 7   | 3.739 |
| 143    | 72  | 4   | 2.306 |
| 144    | 75  | 2.5 | 1.537 |
| 145    | 76  | 3   | 1.857 |
| 146    | 80  | 1.5 | 0.998 |
| 147    | 80  | 2.5 | 1.643 |
| 148    | 80  | 4   | 2.577 |
| 149    | 84  | 5   | 3.349 |
| 150    | 85  | 3   | 2.086 |
| 151    | 86  | 3   | 2.111 |
| 152    | 95  | 3.5 | 2.715 |
| 153    | 95  | 4   | 3.086 |
| 154    | 100 | 5   | 4.027 |
| 155    | 100 | 6   | 4.782 |
| 156    | 110 | 5   | 4.451 |
| 157    | 110 | 10  | 8.478 |
| 158    | 125 | 5   | 5.087 |

# Rund-Rohre / Round tubes

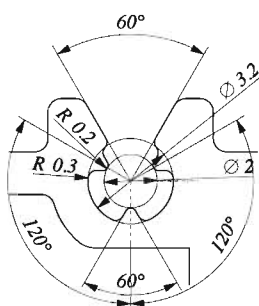
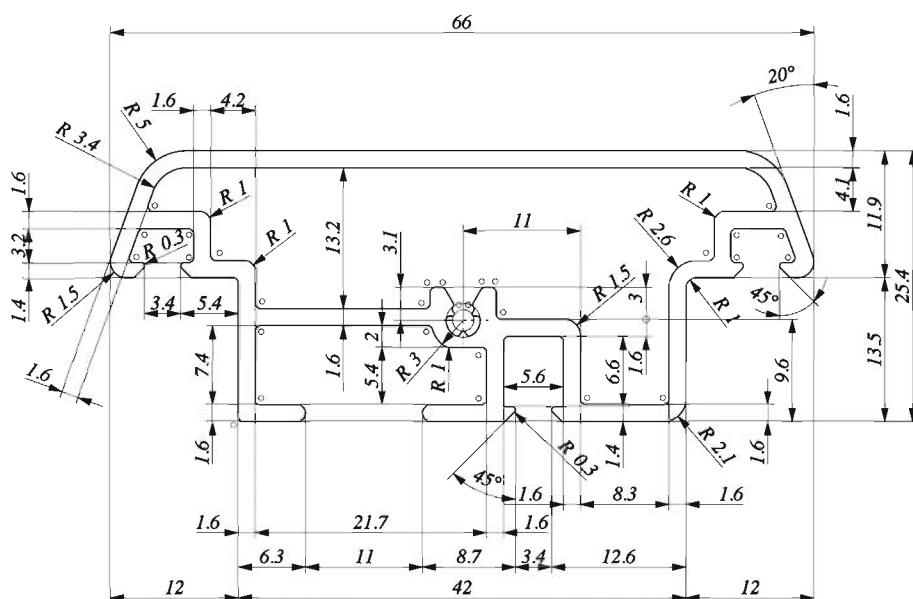
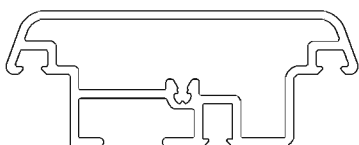






# Zeichnungsprofile / Custom made Profiles

Legierung / Alloy: EN AW-6060  
Toleranz / Tolerance: EN 755-8



**NISSAL** hat mehr als 30 Jahre erfahrung in der Produktion der verschiedene form der Al profile nach der Zeichnung laut zu spezifische gesuch der Kunde.

**NISSAL** has more than 30 years experience in production of various forms of aluminium profiles according to drawings, on the basis of specific Customer's request.

# Zeichnungsprofile / Custom made Profiles





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