

## Alcoa 7055-T77511 Aluminum Extrusions

Category : Metal , Nonferrous Metal , Aluminum Alloy , 7000 Series Aluminum Alloy

### Material Notes:

Alcoa introduced alloy 7055 in the -T7751 temper for plate and the -T77511 for extrusions in 1991. This alloy was developed for use in compression-dominated structures (such as upper wing structures, horizontal stabilizer, and keel beams) and provides advantages over alloy 7150 in compressive and tensile strengths while maintaining other important properties such as fracture toughness and corrosion resistance. Information provided by Alcoa.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Alcoa-7055-T77511-Aluminum-Extrusions.php](http://www.lookpolymers.com/polymer_Alcoa-7055-T77511-Aluminum-Extrusions.php)

| Physical Properties | Metric    | English                  | Comments |
|---------------------|-----------|--------------------------|----------|
| Density             | 2.86 g/cc | 0.103 lb/in <sup>3</sup> |          |

| Mechanical Properties      | Metric                    | English                    | Comments               |
|----------------------------|---------------------------|----------------------------|------------------------|
| Tensile Strength, Ultimate | 634 MPa                   | 92000 psi                  | Longitudinal Direction |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
|                            | 641 MPa                   | 93000 psi                  | LT Direction           |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
| Tensile Strength, Yield    | 614 MPa                   | 89000 psi                  | Longitudinal Direction |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
|                            | 614 MPa                   | 89000 psi                  | LT Direction           |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
| Elongation at Break        | 10 %                      | 10 %                       | LT Direction           |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
|                            | 11 %                      | 11 %                       | Longitudinal Direction |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
| Compressive Yield Strength | 621 MPa                   | 90000 psi                  | Longitudinal Direction |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
|                            | 648 MPa                   | 94000 psi                  | LT Direction           |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
| Fracture Toughness         | 26.4 MPa-m <sup>1/2</sup> | 24.0 ksi-in <sup>1/2</sup> | K <sub>IC</sub> , T-L  |
|                            | @Thickness 25.4 mm        | @Thickness 1.00 in         |                        |
|                            | 28.6 MPa-m <sup>1/2</sup> | 26.0 ksi-in <sup>1/2</sup> |                        |

| Mechanical Properties | Metric<br>@ Thickness 25.4 mm | English<br>@ Thickness 1.00 in | Comments |
|-----------------------|-------------------------------|--------------------------------|----------|
|-----------------------|-------------------------------|--------------------------------|----------|

| Component Elements Properties | Metric        | English       | Comments     |
|-------------------------------|---------------|---------------|--------------|
| Aluminum, Al                  | 85.9 - 88.5 % | 85.9 - 88.5 % | As remainder |
| Chromium, Cr                  | <= 0.04 %     | <= 0.04 %     |              |
| Copper, Cu                    | 2.0 - 2.6 %   | 2.0 - 2.6 %   |              |
| Iron, Fe                      | <= 0.15 %     | <= 0.15 %     |              |
| Magnesium, Mg                 | 1.8 - 2.3 %   | 1.8 - 2.3 %   |              |
| Manganese, Mn                 | <= 0.05 %     | <= 0.05 %     |              |
| Other, each                   | <= 0.05 %     | <= 0.05 %     |              |
| Other, total                  | <= 0.15 %     | <= 0.15 %     |              |
| Silicon, Si                   | <= 0.10 %     | <= 0.10 %     |              |
| Titanium, Ti                  | <= 0.06 %     | <= 0.06 %     |              |
| Zinc, Zn                      | 7.6 - 8.4 %   | 7.6 - 8.4 %   |              |
| Zirconium, Zr                 | 0.08 - 0.25 % | 0.08 - 0.25 % |              |

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