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## Aluminium P-Clamps

**Alu-P-Clamp with / without chloroprene insert**

Manufactured from a high quality aluminium, these metal P-Clamps provide flexibility whilst providing a permanent fixing in the most arduous of environments. The addition of a chloroprene insert provides the cable or pipe bundle with a high degree of protection against vibration, reducing noise and also providing electrical isolation. They are commonly used in caravan construction, the defence and railway industry as well as in the renewable energy sector.

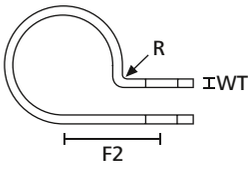
**Features and benefits**

- Simple and secure pipe or cable fixation
- Can be combined with chloroprene rubber for vibration resistance
- Ideal for use in high temperature applications
- Suitable for applications needing strength of metal components

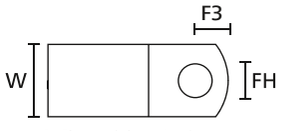


*P-Clamps manufactured in polyamide, aluminium or aluminium with a chloroprene insert.*

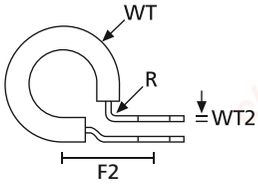
**Material specification please see page 26.**



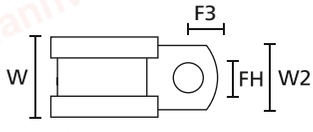

*ALU P-Clamp (side view)*




*ALU P-Clamp (plan view)*




*ALU_C P-Clamp with chloroprene insert (side view)*




*ALU_C P-Clamp with chloroprene insert (plan view)*

| TYPE | Width (W) | Width (W2) | Wall (WT) | Wall (WT2) | Hole Ø (FH) | Fixing Hole Centres (F2) | Fixing Hole Centres (F3) | Bundle Ø max. | Radius (R) | Material | Colour | Article-No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ALU4** | 12.7 | - | 0.80 | - | 5.2 | 11.6 | 5.5 | 6.4 | 1.6 | AL | Natural (NA) | 211-10040 |
| **ALU5** | 12.7 | - | 0.80 | - | 5.2 | 12.6 | 5.5 | 8.0 | 1.6 | AL | Natural (NA) | 211-10050 |
| **ALU6** | 12.7 | - | 0.80 | - | 5.2 | 13.4 | 5.5 | 9.5 | 1.6 | AL | Natural (NA) | 211-10060 |
| **ALU7** | 12.7 | - | 0.80 | - | 5.2 | 14.2 | 5.5 | 11.1 | 1.6 | AL | Natural (NA) | 211-10070 |
| **ALU8** | 12.7 | - | 0.80 | - | 5.2 | 15.0 | 5.5 | 12.7 | 1.6 | AL | Natural (NA) | 211-10080 |
| **ALU10** | 12.7 | - | 0.80 | - | 5.2 | 16.6 | 5.5 | 15.9 | 1.6 | AL | Natural (NA) | 211-10100 |
| **ALU11** | 12.7 | - | 1.30 | - | 5.2 | 19.1 | 5.5 | 17.5 | 2.8 | AL | Natural (NA) | 211-10110 |
| **ALU12** | 12.7 | - | 1.30 | - | 5.2 | 19.9 | 5.5 | 19.1 | 2.8 | AL | Natural (NA) | 211-10120 |
| **ALU13** | 12.7 | - | 1.30 | - | 5.2 | 20.7 | 5.5 | 20.6 | 2.8 | AL | Natural (NA) | 211-10130 |
| **ALU4C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 11.6 | 5.5 | 3.2 | 1.6 | AL, CR | Black (BK) | 211-15040 |
| **ALU5C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 12.6 | 5.5 | 4.8 | 1.6 | AL, CR | Black (BK) | 211-15050 |
| **ALU6C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 13.4 | 5.5 | 6.4 | 1.6 | AL, CR | Black (BK) | 211-15060 |
| **ALU7C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 14.2 | 5.5 | 8.0 | 1.6 | AL, CR | Black (BK) | 211-15070 |
| **ALU8C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 15.0 | 5.5 | 9.5 | 1.6 | AL, CR | Black (BK) | 211-15080 |
| **ALU9C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 15.8 | 5.5 | 11.1 | 1.6 | AL, CR | Black (BK) | 211-15090 |
| **ALU10C** | 16.3 | 12.7 | 3.70 | 0.8 | 5.2 | 16.6 | 5.5 | 12.7 | 1.6 | AL, CR | Black (BK) | 211-15100 |

All dimensions in mm. Subject to technical changes.

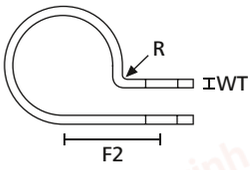
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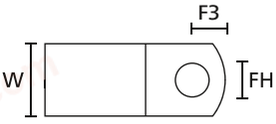


## Aluminium P-Clamps

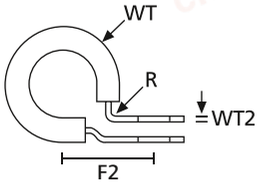
**Alu-P-Clamp with / without chloroprene insert**



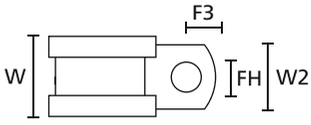

*ALU P-Clamp (side view)*




*ALU P-Clamp (plan view)*




*ALU_C P-Clamp with chloroprene insert (side view)*




*ALU_C P-Clamp with chloroprene insert (plan view)*

| TYPE | Width (W) | Width (W2) | Wall (WT) | Wall (WT2) | Hole Ø (FH) | Fixing Hole Centres (F2) | Fixing Hole Centres (F3) | Bundle Ø max. | Radius (R) | Material | Colour | Article-No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ALU11C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 19.1 | 5.5 | 14.3 | 2.8 | AL, CR | Black (BK) | 211-15110 |
| **ALU12C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 19.9 | 5.5 | 15.9 | 2.8 | AL, CR | Black (BK) | 211-15120 |
| **ALU13C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 20.7 | 5.5 | 17.5 | 2.8 | AL, CR | Black (BK) | 211-15130 |
| **ALU14C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 21.5 | 5.5 | 19.1 | 2.8 | AL, CR | Black (BK) | 211-15140 |
| **ALU15C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 22.3 | 5.5 | 20.6 | 2.8 | AL, CR | Black (BK) | 211-15150 |
| **ALU16C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 23.1 | 5.5 | 22.2 | 2.8 | AL, CR | Black (BK) | 211-15160 |
| **ALU17C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 23.9 | 5.5 | 23.8 | 2.8 | AL, CR | Black (BK) | 211-15170 |
| **ALU18C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 24.6 | 5.5 | 25.4 | 2.8 | AL, CR | Black (BK) | 211-15180 |
| **ALU19C** | 16.3 | 12.7 | 4.50 | 1.3 | 5.2 | 25.5 | 5.5 | 27.0 | 2.8 | AL, CR | Black (BK) | 211-15190 |
| **ALU20C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 27.0 | 5.5 | 28.6 | 3.2 | AL, CR | Black (BK) | 211-15200 |
| **ALU22C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 28.6 | 5.5 | 31.8 | 3.2 | AL, CR | Black (BK) | 211-15220 |
| **ALU23C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 29.4 | 5.5 | 33.3 | 3.2 | AL, CR | Black (BK) | 211-15230 |
| **ALU24C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 30.2 | 5.5 | 34.9 | 3.2 | AL, CR | Black (BK) | 211-15240 |
| **ALU25C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 30.8 | 5.5 | 36.5 | 3.2 | AL, CR | Black (BK) | 211-15250 |
| **ALU26C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 31.7 | 5.5 | 38.1 | 3.2 | AL, CR | Black (BK) | 211-15260 |
| **ALU28C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 33.3 | 5.5 | 41.3 | 3.2 | AL, CR | Black (BK) | 211-15280 |
| **ALU29C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 34.1 | 5.5 | 42.9 | 3.2 | AL, CR | Black (BK) | 211-15290 |
| **ALU30C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 34.9 | 5.5 | 44.5 | 3.2 | AL, CR | Black (BK) | 211-15300 |
| **ALU34C** | 16.3 | 12.7 | 4.50 | 1.6 | 5.2 | 38.1 | 5.5 | 50.8 | 3.2 | AL, CR | Black (BK) | 211-15340 |

All dimensions in mm. Subject to technical changes.

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## Material Specification Overview

| MATERIAL | Material Shortcut | Operating Temperature | Colour** | Flammability | Material Properties* | Material Specifications |
|---|---|---|---|---|---|---|
| **Aluminium-alloy** | AL | -40 °C to +180 °C | Natural (NA) | | • Corrosion resistant<br>• Antimagnetic | RoHS |
| **Chloroprene** | CR | -20 °C to +80 °C | Black (BK) | | • Weather-resistant<br>• High yield strength | RoHS |
| **Ethylene Tetrafluoroethylene (Tefzel®)** | E/TFE | -80 °C to +170 °C | Blue (BU) | UL 94 V0 | • Resistance to radioactivity<br>• UV- resistant, not moisture sensitive<br>• Good chemical resistance to: acids, bases, oxidizing agents | RoHS |
| **Polyacetal** | POM | -40 °C to +90 °C, (+110 °C, 500 h) | Natural (NA) | UL 94 HB | • Limited brittleness sensitivity<br>• Flexible at low temperature<br>• Not moisture sensitive<br>• Robust on impacts | RoHS |
| **Polyamide 11** | PA11 | -40 °C to +85 °C, (+105 °C, 500 h) | Black (BK) | UL 94 HB | • Bio-plastic, derived from vegetable oil<br>• Strong impact resistance at low temperature<br>• Very low moisture absorption<br>• Weather-resistant<br>• Good chemical resistanc | HF<br>RoHS |
| **Polyamide 12** | PA12 | -40 °C to +85 °C, (+105 °C, 500 h) | Black (BK) | UL 94 HB | • Good chemical resistance to: acids, bases, oxidizing agents<br>• UV- resistant | HF<br>RoHS |
| **Polyamide 4.6** | PA46 | -40 °C to +150 °C (5000 h), +195 °C (500 h) | Natural (NA), Grey (GY) | UL 94 V2 | • Resistance to high temperatures<br>• Very moisture sensitive<br>• Low smoke sensitiv | HF<br>LFH<br>RoHS |
| **Polyamide 6** | PA6 | -40 °C to +80 °C | Black (BK) | UL 94 V2 | • High yield strength | RoHS |
| **Polyamide 6,** high impact modified | PA6HIR | -40 °C to +80 °C | Black (BK) | UL 94 HB | • Limited brittleness sensitivity<br>• Higher flexibility at low temperature | RoHS |
| **Polyamide 6.6** | PA66 | -40 °C to +85 °C, (+105 °C, 500 h) | Black (BK), Natural (NA) | UL 94 V2 | • High yield strength | HF<br>RoHS |
| **Polyamide 6.6,** glass-fibre reinforced | PA66GF13, PA66GF15 | -40 °C to +105 °C | Black (BK) | UL 94 HB | • Good resistance to: lubricants, vehicle fuel, salt water and a lot of solvent | HF<br>RoHS |
| **Polyamide 6.6,** heat and UV stabilised | PA66HSW | -40 °C to +105 °C | Black (BK) | UL 94 V2 | • High yield strength<br>• Modified elevated max. temperature<br>• UV-resistant | HF<br>RoHS |
| **Polyamide 6.6,** heat stabilised | PA66HS | -40 °C to +105 °C | Black (BK), Natural (NA) | UL 94 V2 | • High yield strength<br>• Modified elevated max. temperature | HF<br>RoHS |
| **Polyamide 6.6,** high impact modified | PA66HIR | -40 °C to +80 °C, (+105 °C, 500 h) | Black (BK) | UL 94 HB | • Limited brittleness sensitivity<br>• Higher flexibility at low temperature | RoHS |
| **Polyamide 6.6,** high impact modified, heat and UV stabilised | PA66HIRHSW | -40 °C to +110 °C | Black (BK) | UL 94 HB | • Limited brittleness sensitivity<br>• Higher flexibility at low temperature<br>• Modified elevated max. temperature<br>• High yield strength, UV-resistant | RoHS |
| **Polyamide 6.6,** high impact modified, heat stabilised | PA66HIRHS | -40 °C to +105 °C | Black (BK) | UL 94 HB | • Limited brittleness sensitivity<br>• Higher flexibility at low temperature<br>• Modified elevated max. temperature | RoHS |
| **Polyamide 6.6,** high impact modified, ScanBlack | PA66HIR(S) | -40 °C to +80 °C, (+105 °C, 500 h) | Black (BK) | UL 94 HB | • Limited brittleness sensitivity<br>• Higher flexibility at low temperature | RoHS |
| **Polyamide 6.6,** UV-resistant | PA66W | -40 °C to +85 °C, (+105 °C, 500 h) | Black (BK) | UL 94 V2 | • High yield strength<br>• UV-resistant | HF<br>RoHS |

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| MATERIAL | Material Shortcut | Operating Temperature | Colour** | Flammability | Material Properties* | Material Specifications |
|---|---|---|---|---|---|---|
| **Polyamide 6.6,** with metal particles | PA66MP | -40 °C to +85 °C, (+105 °C, 500 h) | Blue (BU) | UL 94 HB | • High yield strength<br>• Metal and X-Ray detectable | HF<br>RoHS |
| **Polyamide 6.6,** with metal particles | PA66MP+ | -40 °C to +85 °C | Blue (BU) | not flame retardant | • High yield strength<br>• Metal and x-ray detectable | HF<br>RoHS |
| **Polyamide 6.6 V0** | PA66V0 | -40 °C to +85 °C | White (WH) | UL 94 V0 | • High yield strength<br>• Low smoke emission | HF<br>LFH<br>RoHS |
| **Polyester** | SP | -50 °C to +150 °C | Black (BK) | halogen free | • UV-resistant<br>• Good chemical resistance to: most acids, alkaliks and oils | HF<br>LFH<br>RoHS |
| **Polyetheretherketone** | PEEK | -55 °C to +240 °C | Beige (BGE) | UL 94 V0 | • Resistance to radioactivity<br>• Not moisture sensitive<br>• Good chemical resistance to: acids, bases, oxidizing agents | HF<br>LFH<br>RoHS |
| **Polyethylene** | PE | -40 °C to +50 °C | Black (BK), Grey (GY) | UL 94 HB | • Low moisture absorption<br>• Good chemical oilsresistance to: most acids, alcohol and oils | HF<br>RoHS |
| **Polyolefin** | PO | -40 °C to +90 °C | Black (BK) | UL 94 V0 | • Low smoke emissions | HF<br>LFH<br>RoHS |
| **Polypropylene** | PP | -40 °C to +115 °C | Black (BK), Natural (NA) | UL 94 HB | • Floats in water<br>• Moderate yield strength<br>• Good chemical resistance to: organic acids | HF<br>RoHS |
| **Polypropylene, Ethylene-Propylene-Dien-Terpolymere-rubber** free of Nitrosamine | PP, EPDM | -20 °C to +95 °C | Black (BK) | UL 94 HB | • Good resistance to high temperatures<br>• Good chemical and abrasion resistance | HF<br>RoHS |
| **Polypropylene** with metal particles | PPMP | -40 °C to +115 °C | Blue (BU) | UL 94 HB | • Metal and X-Ray detectable<br>• Heat resistant<br>• Moderate yield strength<br>• Good chemical resistance | RoHS |
| **Polypropylene** with metal particles | PPMP+ | -40 °C to +85 °C | Blue (BU) | not flame retardant | • High yield strength<br>• Metal and x-ray detectable | HF<br>RoHS |
| **Polyvinylchloride** | PVC | -10 °C to +70 °C | Black (BK), Natural (NA) | UL 94 V0 | • Low moisture absorption<br>• Good chemical resistance to: acids, ethanol and oil | RoHS |
| **Stainless Steel** | SS304, SS316 | -80 °C to +538 °C | Natural (NA) | non-burning | • Corrosion resistant<br>• Antimagnetic<br>• Weather resistant<br>• Outstanding chemical resistance | HF<br>LFH<br>RoHS |
| **Thermoplastic Polyurethane** | TPU | -40 °C to +85 °C | Black (BK) | UL 94 HB | • High elastic<br>• Good chemical resistance to: acids, bases and oxidizing agents | HF<br>RoHS |

Tefzel® is a registered trademark of DuPont. General linguistic usage for cable ties made from raw material E/TFE is Tefzel®-Tie. In additon to Tefzel® from DuPont HellermannTyton is also using equivalent E/TFE raw material from other suppliers.
*These details are only rough guide values. They should not be regarded as a material specification and are no substitute for a suitability test. Please see our datasheets for further details.

**More colours on request.

N = **Minimum Loop Tensile Strength for Cable Ties (Newton)**

**HF = Halogenfree**
**LFH = Limited Fire Hazard**
**RoHS = Restriction of Hazardous Substances**

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