



## Cable Ties for temperatures up to +105 °C (heat stabilised)

### T-Series in PA66HS natural and black

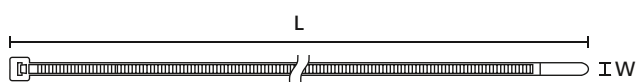
These inside serrated cable ties are made from heat stabilised Polyamide 6.6 (PA66HS). They can be applied in environments with continuous temperatures up to +105 °C. T-Series cable ties can be easily installed by hand or using an application tool to ensure consistency of installation.

#### Features and benefits

- Heat stabilised cable ties (PA66HS) for temperatures up to +105 °C
- Available in a wide range of sizes to cover almost every application
- Inside serration provides a strong hold onto bundles
- Manual and/or pneumatic tools available for greater process reliability
- Commonly offered in natural and black, other colours available on request



Heat stabilised T-Series cable ties up to +105 °C.



T-Series

| TYPE  | Width (W) | Length (L) | Bundle Ø max. | N   | Material | Colour       | Pack Cont. | Tools | Article-No. |
|-------|-----------|------------|---------------|-----|----------|--------------|------------|-------|-------------|
| T18R  | 2.5       | 100.0      | 22.0          | 80  | PA66HS   | Black (BK)   | 100 pcs.   | 2;4-6 | 111-01950   |
|       | 2.5       | 100.0      | 22.0          | 80  | PA66HS   | Natural (NA) | 100 pcs.   | 2;4-6 | 111-01959   |
| T18I  | 2.5       | 145.0      | 35.0          | 80  | PA66HS   | Black (BK)   | 100 pcs.   | 2;4-6 | 111-02358   |
|       | 2.5       | 145.0      | 35.0          | 80  | PA66HS   | Natural (NA) | 1,000 pcs. | 2;4-6 | 111-02359   |
| T18L  | 2.5       | 205.0      | 55.0          | 80  | PA66HS   | Black (BK)   | 100 pcs.   | 2;4-6 | 111-02049   |
|       | 2.5       | 205.0      | 55.0          | 80  | PA66HS   | Natural (NA) | 100 pcs.   | 2;4-6 | 111-02159   |
| T30R  | 3.5       | 150.0      | 35.0          | 135 | PA66HS   | Natural (NA) | 100 pcs.   | 2;4-6 | 111-03259   |
|       | 3.5       | 150.0      | 35.0          | 135 | PA66HS   | Black (BK)   | 100 pcs.   | 2;4-6 | 111-03050   |
| T30L  | 3.5       | 198.0      | 50.0          | 135 | PA66HS   | Black (BK)   | 100 pcs.   | 2;4-6 | 111-03450   |
|       | 3.5       | 198.0      | 50.0          | 135 | PA66HS   | Natural (NA) | 100 pcs.   | 2;4-6 | 111-03459   |
| T30LL | 3.5       | 290.0      | 80.0          | 135 | PA66HS   | Black (BK)   | 1,000 pcs. | 2;4-6 | 111-03660   |
|       | 3.5       | 290.0      | 80.0          | 135 | PA66HS   | Natural (NA) | 100 pcs.   | 2;4-6 | 111-03569   |
| T40R  | 4.0       | 175.0      | 40.0          | 180 | PA66HS   | Black (BK)   | 100 pcs.   | 2;4-8 | 111-01623   |
|       | 4.0       | 175.0      | 40.0          | 180 | PA66HS   | Natural (NA) | 100 pcs.   | 2;4-8 | 111-01627   |
| T50S  | 4.6       | 150.0      | 35.0          | 225 | PA66HS   | Natural (NA) | 100 pcs.   | 2-10  | 111-05859   |
|       | 4.6       | 150.0      | 35.0          | 225 | PA66HS   | Black (BK)   | 100 pcs.   | 2-10  | 111-05850   |
| T50R  | 4.6       | 200.0      | 50.0          | 225 | PA66HS   | Black (BK)   | 100 pcs.   | 2-10  | 111-04950   |
| T50I  | 4.6       | 300.0      | 85.0          | 225 | PA66HS   | Black (BK)   | 100 pcs.   | 2-10  | 111-05250   |
|       | 4.6       | 300.0      | 85.0          | 225 | PA66HS   | Natural (NA) | 100 pcs.   | 2-10  | 111-05259   |
| T50L  | 4.6       | 390.0      | 110.0         | 225 | PA66HS   | Black (BK)   | 100 pcs.   | 2-10  | 111-05450   |
|       | 4.6       | 390.0      | 110.0         | 225 | PA66HS   | Natural (NA) | 100 pcs.   | 2-10  | 111-05436   |
| T80R  | 4.7       | 210.0      | 55.0          | 355 | PA66HS   | Black (BK)   | 1,000 pcs. | 2-12  | 117-08070   |
|       | 4.7       | 210.0      | 55.0          | 355 | PA66HS   | Natural (NA) | 100 pcs.   | 2-12  | 111-05059   |
| T80I  | 4.7       | 300.0      | 85.0          | 355 | PA66HS   | Black (BK)   | 100 pcs.   | 2-12  | 111-08250   |
|       | 4.7       | 300.0      | 85.0          | 355 | PA66HS   | Natural (NA) | 100 pcs.   | 2-12  | 111-08259   |

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

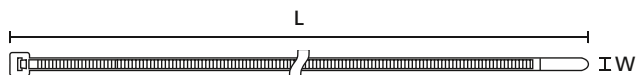


For product specific approvals and specifications please refer to the Appendix.



## Cable Ties for temperatures up to +105 °C (heat stabilised)

### T-Series in PA66HS natural and black



T-Series



**Material specification  
please see page 26.**

| TYPE     | Width (W) | Length (L) | Bundle Ø max. | N   | Material | Colour       | Pack Cont. | Tools  | Article-No. |
|----------|-----------|------------|---------------|-----|----------|--------------|------------|--------|-------------|
| T80L     | 4.7       | 390.0      | 110.0         | 355 | PA66HS   | Black (BK)   | 100 pcs.   | 2-12   | 111-00388   |
|          | 4.7       | 390.0      | 110.0         | 355 | PA66HS   | Natural (NA) | 100 pcs.   | 2-12   | 111-05459   |
| T120S    | 7.6       | 225.0      | 55.0          | 535 | PA66HS   | Black (BK)   | 50 pcs.    | 3;9-12 | 111-12850   |
|          | 7.6       | 225.0      | 55.0          | 535 | PA66HS   | Natural (NA) | 50 pcs.    | 3;9-12 | 111-12824   |
| T150R(H) | 7.6       | 365.0      | 100.0         | 670 | PA66HS   | Black (BK)   | 100 pcs.   | 3;9-12 | 111-15050   |
|          | 7.6       | 365.0      | 100.0         | 670 | PA66HS   | Natural (NA) | 100 pcs.   | 3;9-12 | 111-15069   |
| T120R(E) | 7.6       | 387.0      | 100.0         | 535 | PA66HS   | Black (BK)   | 100 pcs.   | 3;9-12 | 111-12050   |
|          | 7.6       | 387.0      | 100.0         | 535 | PA66HS   | Natural (NA) | 100 pcs.   | 3;9-12 | 111-12059   |
| T120M    | 7.6       | 460.0      | 125.0         | 535 | PA66HS   | Black (BK)   | 100 pcs.   | 3;9-12 | 111-00153   |
| T120XM   | 7.6       | 600.0      | 175.0         | 535 | PA66HS   | Black (BK)   | 50 pcs.    | 3;9-12 | 111-12700   |
|          | 7.6       | 600.0      | 175.0         | 535 | PA66HS   | Natural (NA) | 50 pcs.    | 3;9-12 | 111-12719   |
| T120L    | 7.6       | 760.0      | 225.0         | 535 | PA66HS   | Black (BK)   | 50 pcs.    | 3;9-12 | 111-12440   |
|          | 7.6       | 760.0      | 225.0         | 535 | PA66HS   | Natural (NA) | 50 pcs.    | 3;9-12 | 111-12449   |
| T150L    | 8.8       | 820.0      | 245.0         | 780 | PA66HS   | Black (BK)   | 25 pcs.    | 9-12   | 111-15410   |
| T150M    | 8.9       | 530.0      | 150.0         | 780 | PA66HS   | Black (BK)   | 25 pcs.    | 9-12   | 111-15609   |
| T150XL   | 8.9       | 1,095.0    | 330.0         | 780 | PA66HS   | Black (BK)   | 25 pcs.    | 9-12   | 111-15510   |

All dimensions in mm. Subject to technical changes.

Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

| Recommended Tools |      |      |       |          |      |       |      |     |      |        |      |
|-------------------|------|------|-------|----------|------|-------|------|-----|------|--------|------|
|                   | 2    | 3    | 4     | 5        | 6    | 7     | 8    | 9   | 10   | 11     | 12   |
|                   | MK20 | MK21 | MK3SP | MK3PNSP2 | EVO7 | MK7HT | MK7P | MK6 | EVO9 | EVO9HT | MK9P |
|                   | 551  | 551  | 552   | 552      | 554  | 555   | 556  | 557 | 554  | 554    | 558  |

For more information on toolings please refer to the Application Tooling chapter.



For product specific approvals and specifications please refer to the Appendix.

## Material Specification Overview

| MATERIAL                                                    | Material Shortcut  | Operating Temperature                       | Colour**                 | Flammability | Material Properties*                                                                                                                                                                                                                              | Material Specifications |
|-------------------------------------------------------------|--------------------|---------------------------------------------|--------------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Aluminium-alloy                                             | AL                 | -40 °C to +180 °C                           | Natural (NA)             |              | <ul style="list-style-type: none"> <li>Corrosion resistant</li> <li>Antimagnetic</li> </ul>                                                                                                                                                       | RoHS                    |
| Chloroprene                                                 | CR                 | -20 °C to +80 °C                            | Black (BK)               |              | <ul style="list-style-type: none"> <li>Weather-resistant</li> <li>High yield strength</li> </ul>                                                                                                                                                  | RoHS                    |
| Ethylene Tetrafluoroethylene (Tefzel®)                      | E/TFE              | -80 °C to +170 °C                           | Blue (BU)                | UL 94 V0     | <ul style="list-style-type: none"> <li>Resistance to radioactivity</li> <li>UV-resistant, not moisture sensitive</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul>                                                  | RoHS                    |
| Polyacetal                                                  | POM                | -40 °C to +90 °C, (+110 °C, 500 h)          | Natural (NA)             | UL 94 HB     | <ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Flexible at low temperature</li> <li>Not moisture sensitive</li> <li>Robust on impacts</li> </ul>                                                                 | RoHS                    |
| Polyamide 11                                                | PA11               | -40 °C to +85 °C, (+105 °C, 500 h)          | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Bio-plastic, derived from vegetable oil</li> <li>Strong impact resistance at low temperature</li> <li>Very low moisture absorption</li> <li>Weather-resistant</li> <li>Good chemical resistance</li> </ul> | HF<br>RoHS              |
| Polyamide 12                                                | PA12               | -40 °C to +85 °C, (+105 °C, 500 h)          | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> <li>UV-resistant</li> </ul>                                                                                                               | 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     | <ul style="list-style-type: none"> <li>Resistance to high temperatures</li> <li>Very moisture sensitive</li> <li>Low smoke sensitiv</li> </ul>                                                                                                    | HF<br>LFH<br>RoHS       |
| Polyamide 6                                                 | PA6                | -40 °C to +80 °C                            | Black (BK)               | UL 94 V2     | <ul style="list-style-type: none"> <li>High yield strength</li> </ul>                                                                                                                                                                             | RoHS                    |
| Polyamide 6, high impact modified                           | PA6HIR             | -40 °C to +80 °C                            | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>                                                                                                                  | RoHS                    |
| Polyamide 6.6                                               | PA66               | -40 °C to +85 °C, (+105 °C, 500 h)          | Black (BK), Natural (NA) | UL 94 V2     | <ul style="list-style-type: none"> <li>High yield strength</li> </ul>                                                                                                                                                                             | HF<br>RoHS              |
| Polyamide 6.6, glass-fibre reinforced                       | PA66GF13, PA66GF15 | -40 °C to +105 °C                           | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Good resistance to: lubricants, vehicle fuel, salt water and a lot of solvent</li> </ul>                                                                                                                   | HF<br>RoHS              |
| Polyamide 6.6, heat and UV stabilised                       | PA66HSW            | -40 °C to +105 °C                           | Black (BK)               | UL 94 V2     | <ul style="list-style-type: none"> <li>High yield strength</li> <li>Modified elevated max. temperature</li> <li>UV-resistant</li> </ul>                                                                                                           | HF<br>RoHS              |
| Polyamide 6.6, heat stabilised                              | PA66HS             | -40 °C to +105 °C                           | Black (BK), Natural (NA) | UL 94 V2     | <ul style="list-style-type: none"> <li>High yield strength</li> <li>Modified elevated max. temperature</li> </ul>                                                                                                                                 | HF<br>RoHS              |
| Polyamide 6.6, high impact modified                         | PA66HIR            | -40 °C to +80 °C, (+105 °C, 500 h)          | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>                                                                                                                  | RoHS                    |
| Polyamide 6.6, high impact modified, heat and UV stabilised | PA66HIRHSW         | -40 °C to +110 °C                           | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> <li>Modified elevated max. temperature</li> <li>High yield strength, UV-resistant</li> </ul>                           | RoHS                    |
| Polyamide 6.6, high impact modified, heat stabilised        | PA66HIRHS          | -40 °C to +105 °C                           | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> <li>Modified elevated max. temperature</li> </ul>                                                                      | RoHS                    |
| Polyamide 6.6, high impact modified, ScanBlack              | PA66HIR(S)         | -40 °C to +80 °C, (+105 °C, 500 h)          | Black (BK)               | UL 94 HB     | <ul style="list-style-type: none"> <li>Limited brittleness sensitivity</li> <li>Higher flexibility at low temperature</li> </ul>                                                                                                                  | RoHS                    |
| Polyamide 6.6, UV-resistant                                 | PA66W              | -40 °C to +85 °C, (+105 °C, 500 h)          | Black (BK)               | UL 94 V2     | <ul style="list-style-type: none"> <li>High yield strength</li> <li>UV-resistant</li> </ul>                                                                                                                                                       | HF<br>RoHS              |

| MATERIAL                                                                                | Material Shortcut | Operating Temperature                 | Colour**                    | Flammability        | Material Properties*                                                                                                                                                               | Material Specifications                |
|-----------------------------------------------------------------------------------------|-------------------|---------------------------------------|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Polyamide 6.6</b> ,<br>with metal particles                                          | PA66MP            | -40 °C to +85 °C,<br>(+105 °C, 500 h) | Blue (BU)                   | UL 94 HB            | <ul style="list-style-type: none"> <li>High yield strength</li> <li>Metal and X-Ray detectable</li> </ul>                                                                          | <b>HF</b><br><b>RoHS</b>               |
| <b>Polyamide 6.6</b> ,<br>with metal particles                                          | PA66MP+           | -40 °C to +85 °C                      | Blue (BU)                   | not flame retardant | <ul style="list-style-type: none"> <li>High yield strength</li> <li>Metal and x-ray detectable</li> </ul>                                                                          | <b>HF</b><br><b>RoHS</b>               |
| <b>Polyamide 6.6 V0</b>                                                                 | PA66V0            | -40 °C to +85 °C                      | White (WH)                  | UL 94 V0            | <ul style="list-style-type: none"> <li>High yield strength</li> <li>Low smoke emission</li> </ul>                                                                                  | <b>HF</b><br><b>LFH</b><br><b>RoHS</b> |
| <b>Polyester</b>                                                                        | SP                | -50 °C to +150 °C                     | Black (BK)                  | halogen free        | <ul style="list-style-type: none"> <li>UV-resistant</li> <li>Good chemical resistance to: most acids, alkalis and oils</li> </ul>                                                  | <b>HF</b><br><b>LFH</b><br><b>RoHS</b> |
| <b>Polyetheretherketone</b>                                                             | PEEK              | -55 °C to +240 °C                     | Beige (BGE)                 | UL 94 V0            | <ul style="list-style-type: none"> <li>Resistance to radioactivity</li> <li>Not moisture sensitive</li> <li>Good chemical resistance to: acids, bases, oxidizing agents</li> </ul> | <b>HF</b><br><b>LFH</b><br><b>RoHS</b> |
| <b>Polyethylene</b>                                                                     | PE                | -40 °C to +50 °C                      | Black (BK),<br>Grey (GY)    | UL 94 HB            | <ul style="list-style-type: none"> <li>Low moisture absorption</li> <li>Good chemical resistance to: most acids, alcohol and oils</li> </ul>                                       | <b>HF</b><br><b>RoHS</b>               |
| <b>Polyolefin</b>                                                                       | PO                | -40 °C to +90 °C                      | Black (BK)                  | UL 94 V0            | <ul style="list-style-type: none"> <li>Low smoke emissions</li> </ul>                                                                                                              | <b>HF</b><br><b>LFH</b><br><b>RoHS</b> |
| <b>Polypropylene</b>                                                                    | PP                | -40 °C to +115 °C                     | Black (BK),<br>Natural (NA) | UL 94 HB            | <ul style="list-style-type: none"> <li>Floats in water</li> <li>Moderate yield strength</li> <li>Good chemical resistance to: organic acids</li> </ul>                             | <b>HF</b><br><b>RoHS</b>               |
| <b>Polypropylene, Ethylene-Propylene-Dien-Terpolymere-rubber</b><br>free of Nitrosamine | PP, EPDM          | -20 °C to +95 °C                      | Black (BK)                  | UL 94 HB            | <ul style="list-style-type: none"> <li>Good resistance to high temperatures</li> <li>Good chemical and abrasion resistance</li> </ul>                                              | <b>HF</b><br><b>RoHS</b>               |
| <b>Polypropylene</b><br>with metal particles                                            | PPMP              | -40 °C to +115 °C                     | Blue (BU)                   | UL 94 HB            | <ul style="list-style-type: none"> <li>Metal and X-Ray detectable</li> <li>Heat resistant</li> <li>Moderate yield strength</li> <li>Good chemical resistance</li> </ul>            | <b>RoHS</b>                            |
| <b>Polypropylene</b><br>with metal particles                                            | PPMP+             | -40 °C to +85 °C                      | Blue (BU)                   | not flame retardant | <ul style="list-style-type: none"> <li>High yield strength</li> <li>Metal and x-ray detectable</li> </ul>                                                                          | <b>HF</b><br><b>RoHS</b>               |
| <b>Polyvinylchloride</b>                                                                | PVC               | -10 °C to +70 °C                      | Black (BK),<br>Natural (NA) | UL 94 V0            | <ul style="list-style-type: none"> <li>Low moisture absorption</li> <li>Good chemical resistance to: acids, ethanol and oil</li> </ul>                                             | <b>RoHS</b>                            |
| <b>Stainless Steel</b>                                                                  | SS304,<br>SS316   | -80 °C to +538 °C                     | Natural (NA)                | non-burning         | <ul style="list-style-type: none"> <li>Corrosion resistant</li> <li>Antimagnetic</li> <li>Weather resistant</li> <li>Outstanding chemical resistance</li> </ul>                    | <b>HF</b><br><b>LFH</b><br><b>RoHS</b> |
| <b>Thermoplastic Polyurethane</b>                                                       | TPU               | -40 °C to +85 °C                      | Black (BK)                  | UL 94 HB            | <ul style="list-style-type: none"> <li>High elastic</li> <li>Good chemical resistance to: acids, bases and oxidizing agents</li> </ul>                                             | <b>HF</b><br><b>RoHS</b>               |

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\*\*More colours on request.



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

**HF** = Halogenfree

**LFH** = Limited Fire Hazard

**RoHS** = Restriction of Hazardous Substances