



## 1-piece fixing ties for weld studs

### for lateral adjustment, WSP-Serie

Primarily designed for use in the automotive industry, these parts can be used in a wide variety of applications where weld studs or ISO bolts are used and cables need to be bundled and secured.

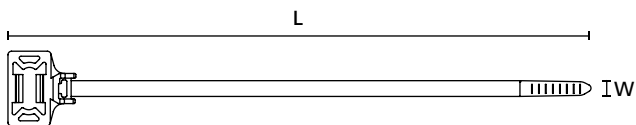
#### Features and benefits

- Cable tie head always situated in defined position
- Easy to install without the need for a tool
- Provides a 5 – 6 mm lateral adjustment possibility
- Very low profile, stackable design
- For bundles which need to be routed in different directions



T50SOSWSP5E-2, parallel installation using two fixing ties.

Material information on page 22.



T50SOSWSP5E

| TYPE          | Drawing | Stud Ø   | Width (W) | Length (L) | Bundle Ø max. | N   | Material | Colour | Tools      | Article-No. |
|---------------|---------|----------|-----------|------------|---------------|-----|----------|--------|------------|-------------|
| T50SOSWSP5E   |         | 5.0      | 4.6       | 163.0      | 35.0          | 200 | PA66HS   | BK     | 1-2;4-7;25 | 157-00226   |
| T50SOSWSP5E-2 |         | 5.0, 6.0 | 4.6       | 162.6      | 35.0          | 225 | PA66HS   | BK     | 1-2;4-6;25 | 133-01553   |
| T50SOSWSP6E   |         | 6.0      | 4.6       | 164.9      | 35.0          | 225 | PA66HS   | BK     | 1-2;4-6;25 | 156-02420   |

Recommended Tools: 1=MK10-SB, 2=MK20, 4=MK3PNSP2, 5=EVO7i, 6=MK7P, 7=EVO9i, 25=EVOcut. For more information on toolings please refer to the Application Tooling chapter on page 346.

All dimensions in mm. Subject to technical changes.



Material Specification Overview

| MATERIAL                                                          | Material<br>Shortcut | Operating<br>Temperature                                   | Colour**                    | Flammability | Material Properties*                                                                                                                                                                                                                                  | Material<br>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 Rubber                                                | 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<br>Tetrafluoroethylene<br>(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,<br>(+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 impact</li></ul>                                                                   | RoHS                       |
| Polyamide 11                                                      | PA11                 | -40 °C to +85 °C,<br>(+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,<br>(+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 +130 °C,<br>(+150 °C, 5000 h;<br>+195 °C, 500 h) | Natural (NA),<br>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 sensitivity</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,<br>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,<br>(+105 °C, 500 h)                      | Black (BK),<br>Natural (NA) | UL 94 V2     | <ul style="list-style-type: none"><li>• High yield strength</li></ul>                                                                                                                                                                                 | HF<br>RoHS                 |
| Polyamide 6.6,<br>glass-fibre reinforced                          | PA66GF13             | -40 °C to +105 °C                                          | Black (BK)                  | UL 94 HB     | <ul style="list-style-type: none"><li>• Good resistance to lubricants, fuels, salt water and solvents</li></ul>                                                                                                                                       | HF<br>RoHS                 |
| Polyamide 6.6,<br>heat and UV-stabilised                          | PA66HSUV             | -40 °C to +105 °C                                          | Black (BK)                  | UL 94 V2     | <ul style="list-style-type: none"><li>• High yield strength</li><li>• Modified elevated maximum temperature</li><li>• UV resistant</li></ul>                                                                                                          | HF<br>RoHS                 |
| Polyamide 6.6,<br>heat stabilised                                 | PA66HS               | -40 °C to +105 °C                                          | Black (BK),<br>Natural (NA) | UL 94 V2     | <ul style="list-style-type: none"><li>• High yield strength</li><li>• Modified elevated maximum temperature</li></ul>                                                                                                                                 | HF<br>RoHS                 |
| Polyamide 6.6,<br>high impact modified                            | PA66HIR              | -40 °C to +80 °C,<br>(+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,<br>high impact modified,<br>heat and UV-stabilised | PA66HIRHSUV          | -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 maximum temperature</li><li>• High yield strength, UV resistant</li></ul>                         | RoHS                       |
| Polyamide 6.6,<br>high impact modified,<br>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 maximum temperature</li></ul>                                                                     | RoHS                       |
| Polyamide 6.6,<br>high impact modified,<br>scan black)            | PA66HIR(S)           | -40 °C to +80 °C,<br>(+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>                                                                                                                     | HF<br>RoHS                 |
| Polyamide 6.6,<br>UV-resistant                                    | PA66W                | -40 °C to +85 °C,<br>(+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            | • High yield strength<br>• Metal and X-Ray detectable                                                                                                              | HF<br>RoHS              |
| <b>Polyamide 6.6,</b><br>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              |
| <b>Polyamide 6.6 V0</b>                                                                         | PA66V0            | -40 °C to +85 °C                      | White (WH)                  | UL 94 V0            | • High yield strength<br>• Low smoke emission                                                                                                                      | HF<br>LFH<br>RoHS       |
| <b>Polyester</b>                                                                                | SP                | -50 °C to +150 °C                     | Black (BK)                  |                     | • UV resistant<br>• Good chemical resistance to most acids, bases and oils                                                                                         | HF<br>LFH<br>RoHS       |
| <b>Polyetheretherketone</b>                                                                     | PEEK              | -55 °C to +240 °C                     | Beige (BGE)                 | UL 94 V2            | • Resistance to radioactivity<br>• Not moisture sensitive<br>• Good chemical resistance to acids, bases, oxidising agents                                          | HF<br>LFH<br>RoHS       |
| <b>Polyethylene</b>                                                                             | PE                | -40 °C to +50 °C                      | Black (BK),<br>Grey (GY)    | UL 94 HB            | • Low moisture absorption<br>• Good chemical resistance to most acids, bases, alcohol, oils                                                                        | HF<br>RoHS              |
| <b>Polyolefin</b>                                                                               | PO                | -40 °C to +90 °C                      | Black (BK)                  | UL 94 V0            | • Low smoke emissions                                                                                                                                              | HF<br>LFH<br>RoHS       |
| <b>Polypropylene</b>                                                                            | PP                | -40 °C to +115 °C                     | Black (BK),<br>Natural (NA) | UL 94 HB            | • Floats in water<br>• Moderate yield strength<br>• Good chemical resistance to acids, bases and solvents                                                          | HF<br>RoHS              |
| <b>Polypropylene,<br/>Ethylene Propylene<br/>Diene Terpolymer</b><br>rubber free of Nitrosamine | PP, EPDM          | -20 °C to +95 °C                      | Black (BK)                  | UL 94 HB            | • Good resistance to high temperature<br>• Good chemical and abrasion resistance                                                                                   | HF<br>RoHS              |
| <b>Polypropylene</b><br>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                    |
| <b>Polypropylene</b><br>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              |
| <b>Polyvinylchloride</b>                                                                        | PVC               | -10 °C to +70 °C                      | Black (BK),<br>Natural (NA) | UL 94 V0            | • Low moisture absorption<br>• Good chemical resistance to acids, bases, salts, alcohol, oils                                                                      | RoHS                    |
| <b>Stainless Steel,<br/>Stainless Steel</b>                                                     | SS304, SS316      | -80 °C to +538 °C                     | Natural (NA)                | non-burning         | • Corrosion resistant<br>• Antimagnetic<br>• Weather resistant<br>• Chemical resistance<br>• SS316 also resistant against seawater, salt spray and anorganic acids | HF<br>LFH<br>RoHS       |
| <b>Thermoplastic<br/>Polyurethane</b>                                                           | TPU               | -40 °C to +85 °C                      | Black (BK)                  | UL 94 HB            | • High elasticity<br>• Good chemical resistance to acids, bases and oxidising 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 addition to Tefzel® from DuPont HellermannTyton also uses equivalent E/TFE raw material from other suppliers.

\*These details are only guide values. They should not be regarded as an exhaustive material specification and are no substitute for suitability tests. Please see our datasheets for further details.

HF = Halogen Free

LFH = Limited Fire Hazard

RoHS = Restriction of Hazardous Substances

\*\*Further colours available on request.



= Minimum Loop Tensile Strength  
for Cable Ties (newton)

For more material information  
please visit our website.