# 2-piece fixing ties with pipe clip

These fasteners interconnect two different bundles of goods, of various size and type. The mobility of the fixing tie provides a secure grip and protects the cables or bundles, even in difficult conditions.

#### **Features and benefits**

- · Easy to assemble
- For routing of two different bundles
- For post-installation of additional cables for pre-assembled cable looms
- Ideally used in the automotive industry, but also in all industries where bundles, cables have to be routed and connected

## 2-piece fixing ties with pipe clip, twistable 360°

#### Features and benefits

- · Simply clip on a wire or hose
- Fixing clip offers full 360° rotation
- Routed cable can move in any direction in relation to the fixing point



#### 2-piece fixing ties with pipe clip

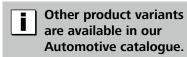
#### Features and benefits

- For post-installation of additional cables for pre-assembled cable looms
- Variety of twist angles and even different loop directions provide flexibility for cable routing
- For OC1 and 2A additional cable tie dimensions are available
- CBTO-series for cable ties up to 5 mm





Material specification please see page 26.





## 2-piece fixing ties with pipe clip, twistable 360°

TYPE	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.	Material	Colour	Tools	Article-No.
T50SVC4S		3.8 - 4.2	4.7	155.0	35.0	PA66HS, PP	Black (BK), Natural (NA)	1-2;4-6;25	156-01374
T50SVC6.5		6.5 - 8.0	4.7	155.0	35.0	PA66HS, PA66HIRHS	Black (BK)	1-2;4-6;25	156-00155
T50SVCOC10-14		10.0 - 14.0	4.7	155.0	35.0	PA46	Grey (GY)	1-2;4-6;25	156-01045
T50SVCOC19-24.5		19.0 - 24.5	4.7	155.0	35.0	PA66HS, PA66HIRHS	Black (BK)	1-2;4-6;25	156-00136

All dimensions in mm. Subject to technical changes.

## 2-piece fixing ties with pipe clip

TYPE	Drawing	Attach to Ø	Width (W)	Length (L)	Material	Bundle Ø max.	Colour	Tools	Article-No.
T50ROC1B		4.0 - 10.0	4.6	202.0	PA66HS, PA66HIRHS	45.0	Black (BK)	1-2;4-6;25	156-00306

All dimensions in mm. Subject to technical changes.

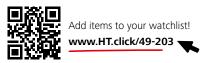
## 2-piece fixing ties with automatic harness clip

TYPE	Drawing	Attach to Ø	Width (W)	Length (L)	Bundle Ø max.	KZ)	Material	Colour	Tools	Article-No.
T50RIAHC1TICR		3.0 - 13.0	4.6	200.0	45.0	225	PA66HIRHS	Black (BK)	1-2;4-6;25	156-03377
T50RIAHC2TICR		11.0 - 20.0	4.6	200.0	50.0	225	PA66HIRHS	Black (BK)	1-2;4-6;25	156-05330

All dimensions in mm. Subject to technical changes.

Rec	Recommended Tools										
	1	2	4	5	6	25					
	MK10-SB	MK20	MK3PNSP2	EVO7i	MK7P	EVOcut					
	550	550	551	553	555	563					

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





# **Material Specification Overview**

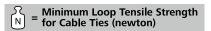
MATERIAL	Material Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	Material Specifications
Aluminium alloy	AL	-40 °C to +180 °C	Natural (NA)		Corrosion resistant Antimagnetic	RoHS
Chloroprene rubber	CR	-20 °C to +80 °C	Black (BK)		Weather resistant High yield strength	RoHS
Ethylene Tetrafluoroethylene (Tefzel <sup>®</sup> )	E/TFE	-80 °C to +170 °C	Blue (BU)	UL 94 V0	Resistance to radioactivity UV resistant, not moisture sensitive 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	<ul><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, (+105 °C, 500 h)	Black (BK)	UL 94 HB	Bio-plastic, derived from vegetable oil Strong impact resistance at low temperature Very low moisture absorption Weather resistant Good chemical resistance	HF 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 UV resistant	HF RoHS
Polyamide 4.6	PA46	-40 °C to +130 °C, (+150 °C, 5000 h; +195 °C, 500 h)	Natural (NA), Grey (GY)	UL 94 V2	Resistance to high temperatures Very moisture sensitive Low smoke sensitivity	HF LFH RoHS
Polyamide 6	PA6	-40 °C to +80 °C	Black (BK)	UL 94 V2	High yield strength	RoHS
<b>Polyamide 6,</b> high impact modified	PA6HIR	-40 °C to +80 °C	Black (BK)	UL 94 HB	Limited brittleness sensitivity 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 RoHS
<b>Polyamide 6.6,</b> glass-fibre reinforced	PA66GF13	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK)	UL 94 HB	Good resistance to lubricants, fuels, salt water and solvents	HF RoHS
Polyamide 6.6, heat and UV-stabilised	PA66HSUV	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK)	UL 94 V2	<ul><li>High yield strength</li><li>Modified elevated maximum temperature</li><li>UV resistant</li></ul>	HF RoHS
Polyamide 6.6, heat stabilised	PA66HS	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK), Natural (NA)	UL 94 V2	High yield strength Modified elevated maximum temperature	HF RoHS
<b>Polyamide 6.6,</b> high impact modified	PA66HIR	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul><li>Limited brittleness sensitivity</li><li>Higher flexibility at low temperature</li></ul>	RoHS
<b>Polyamide 6.6,</b> high impact modified, heat and UV-stabilised	PA66HIRHSUV	-40 °C to +110 °C	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated maximum temperature High yield strength, UV resistant	RoHS
Polyamide 6.6, high impact modified, heat stabilised	PA66HIRHS	-40 °C to +105 °C, (+105 °C for 500 h)	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated maximum temperature	RoHS
<b>Polyamide 6.6,</b> high impact modified, scan black	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	Limited brittleness sensitivity Higher flexibility at low temperature	RoHS
<b>Polyamide 6.6,</b> UV-resistant	PA66W	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 V2	High yield strength UV resistant	HF RoHS
<b>Polyamide 6.6,</b> with metal particles	PA66MP	-40 °C to +85 °C, (+105 °C, 500 h)	Blue (BU)	UL 94 HB	High yield strength Metal and X-Ray detectable	HF RoHS
<b>Polyamide 6.6,</b> with metal particles	PA66MP+	-40 °C to +85 °C	Blue (BU)	not flame- retardant	High yield strength Metal and X-Ray detectable	HF RoHS



MATERIAL	Material Shortcut	Operating Temperature	Colour**	Flammability	Material Properties*	Material Specifications
Polyamide 6.6 V0	PA66V0	-40 °C to +85 °C	White (WH)	UL 94 V0	High yield strength Low smoke emission	HF LFH RoHS
Polyester	SP	-50 °C to +150 °C	Black (BK)		UV resistant Good chemical resistance to most acids, bases and oils	HF LFH RoHS
Polyetheretherketone	PEEK	-55 °C to +240 °C	Beige (BGE)	UL 94 V0	Resistance to radioactivity Not moisture sensitive Good chemical resistance to acids, bases, oxidising agents	HF LFH RoHS
Polyethylene	PE	-40 °C to +50 °C	Black (BK), Grey (GY)	UL 94 HB	Low moisture absorption Good chemical resistance to most acids, bases, alcohol, oils	HF RoHS
Polyolefin	PO	-40 °C to +90 °C	Black (BK)	UL 94 V0	Low smoke emissions	HF LFH RoHS
Polypropylene	PP	-40 °C to +115 °C	Black (BK), Natural (NA)	UL 94 HB	<ul><li>Floats in water</li><li>Moderate yield strength</li><li>Good chemical resistance to acids, bases and solvents</li></ul>	HF RoHS
Polypropylene, Ethylene Propylene Diene Terpolymer rubber free of Nitrosamine	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL 94 HB	Good resistance to high temperature Good chemical and abrasion resistance	HF RoHS
<b>Polypropylene</b> with metal particles	PPMP	-40 °C to +115 °C	Blue (BU)	UL 94 HB	<ul><li>Metal and X-Ray detectable</li><li>Heat resistant</li><li>Moderate yield strength</li><li>Good chemical resistance</li></ul>	RoHS
<b>Polypropylene</b> with metal particles	PPMP+	-40 °C to +85 °C	Blue (BU)	not flame- retardant	High yield strength Metal and X-Ray detectable	HF RoHS
Polyvinylchloride	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL 94 V0	Low moisture absorption Good chemical resistance to acids, bases, salts, alcohol, oils	RoHS
Stainless Steel	SS304, SS316	-80 °C to +538 °C	Natural (NA)	Non burning	Corrosion resistant Antimagnetic Weather resistant Chemical resistance SS316 also resistant against seawater, salt spray and anorganic acids	HF LFH RoHS
Thermoplastic Polyurethane	TPU	-40 °C to +85 °C	Black (BK)	UL 94 HB	High elasticity Good chemical resistance to: acids, bases and oxidizing agents	HF 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.

HF = Halogen Free LFH = Limited Fire Hazard RoHS = Restriction of Hazardous Substances





<sup>\*\*</sup>Further colours available on request.

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