

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"> Corrosion resistant Antimagnetic 	RoHS
Chloroprene rubber	CR	-20 °C to +80 °C	Black (BK)		<ul style="list-style-type: none"> Weather resistant High yield strength 	RoHS
Ethylene Tetrafluoroethylene (Tefzel®)	E/TFE	-80 °C to +170 °C	Blue (BU)	UL 94 V0	<ul style="list-style-type: none"> 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 style="list-style-type: none"> Limited brittleness sensitivity Flexible at low temperature Not moisture sensitive Robust on impact 	RoHS
Polyamide 11	PA11	-40 °C to +85 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> High yield strength 	RoHS
Polyamide 6 high impact modified	PA6HIR	-40 °C to +80 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> High yield strength 	HF 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"> Good resistance to lubricants, fuels, salt water and solvents 	HF 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"> High yield strength Modified elevated maximum temperature UV resistant 	HF 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"> High yield strength Modified elevated maximum temperature 	HF 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"> Limited brittleness sensitivity 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	<ul style="list-style-type: none"> 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	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Limited brittleness sensitivity Higher flexibility at low temperature Modified elevated maximum temperature 	RoHS
Polyamide 6.6 high impact modified, scan black	PA66HIR(S)	-40 °C to +80 °C, (+105 °C, 500 h)	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Limited brittleness sensitivity 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	<ul style="list-style-type: none"> High yield strength UV resistant 	HF RoHS

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	<ul style="list-style-type: none"> High yield strength Metal and X-Ray detectable 	HF RoHS
Polyamide 6.6 with metal particles	PA66MP+	-40 °C to +85 °C	Blue (BU)	not flame retardant	<ul style="list-style-type: none"> High yield strength Metal and X-Ray detectable 	HF RoHS
Polyamide 6.6 V0	PA66V0	-40 °C to +85 °C	White (WH)	UL 94 V0	<ul style="list-style-type: none"> High yield strength Low smoke emission 	HF LFH RoHS
Polyester	SP	-50 °C to +150 °C	Black (BK)		<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> Low smoke emissions 	HF LFH RoHS
Polypropylene	PP	-40 °C to +115 °C	Black (BK), Natural (NA)	UL 94 HB	<ul style="list-style-type: none"> Floats in water Moderate yield strength Good chemical resistance to acids, bases and solvents 	HF RoHS
Polypropylene, Ethylene Propylene Diene Terpolymer rubber free of Nitrosamine	PP, EPDM	-20 °C to +95 °C	Black (BK)	UL 94 HB	<ul style="list-style-type: none"> Good resistance to high temperature Good chemical and abrasion resistance 	HF RoHS
Polypropylene with metal particles	PPMP	-40 °C to +115 °C	Blue (BU)	UL 94 HB	<ul style="list-style-type: none"> Metal and X-Ray detectable Heat resistant Moderate yield strength Good chemical resistance 	RoHS
Polypropylene with metal particles	PPMP+	-40 °C to +85 °C	Blue (BU)	not flame retardant	<ul style="list-style-type: none"> High yield strength Metal and X-Ray detectable 	HF RoHS
Polyvinylchloride	PVC	-10 °C to +70 °C	Black (BK), Natural (NA)	UL 94 V0	<ul style="list-style-type: none"> Low moisture absorption Good chemical resistance to acids, bases, salts, alcohol, oils 	RoHS
Stainless Steel, Stainless Steel	SS304, SS316	-80 °C to +538 °C	Natural (NA)	Non burning	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> High elasticity Good chemical resistance to acids, bases and oxidising 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.

*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.

**Further colours available on request.



= Minimum Loop Tensile Strength for Cable Ties (Newton)

HF = Halogenfree

LFH = Limited Fire Hazard

RoHS = Restriction of Hazardous Substances



Cable Ties Polyamide 6.6 standard

T-Series in PA66 natural and black

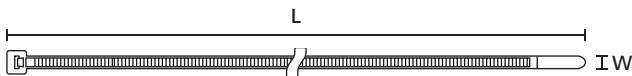
These cable ties are used for routing, bundling and securing of cables, pipes and hoses.

Features and benefits

- Available in a wide range of materials and sizes
- High tensile strength with very low insertion force
- Only high quality plastic is used meeting recycling targets
- Inside serrated cable ties for a strong hold onto bundles
- Ergonomic bent tail offers quick and simple installation
- Easy application either manually or with an application tool



Standard T-Series cable ties – for almost any type of application (PA66).



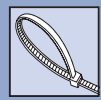
T-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
T18S	2.3	83.0	16.0	80	PA66	Natural (NA)	1,000 pcs.	2;4-6	111-02809
T18R	2.5	100.0	22.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	111-01919
	2.5	100.0	22.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-01910
T18I	2.5	145.0	35.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-02370
	2.5	145.0	35.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	111-02319
T18L	2.5	205.0	55.0	80	PA66	Natural (NA)	100 pcs.	2;4-6	111-02119
	2.5	205.0	55.0	80	PA66	Black (BK)	100 pcs.	2;4-6	111-02110
T25L	2.8	240.0	65.0	110	PA66	Black (BK)	100 pcs.	2;4-6	111-02500
	2.8	240.0	65.0	110	PA66	Natural (NA)	100 pcs.	2;4-6	111-02519
T25LL	2.8	330.0	95.0	110	PA66	Natural (NA)	100 pcs.	2;4-6	111-02619
T30R	3.5	150.0	35.0	135	PA66	Black (BK)	100 pcs.	2;4-6	111-03210
	3.5	150.0	35.0	135	PA66	Natural (NA)	100 pcs.	2;4-6	111-03009
T30L	3.5	198.0	50.0	135	PA66	Natural (NA)	100 pcs.	2;4-6	111-03419
	3.5	198.0	50.0	135	PA66	Black (BK)	100 pcs.	2;4-6	111-03410
T30LL	3.5	290.0	80.0	135	PA66	Black (BK)	100 pcs.	2;4-6	111-03500
	3.5	290.0	80.0	135	PA66	Natural (NA)	100 pcs.	2;4-6	111-03529
T40R	4.0	175.0	40.0	180	PA66	Natural (NA)	100 pcs.	2;4-8	111-01626
T50S	4.6	150.0	35.0	225	PA66	Black (BK)	100 pcs.	2-10	111-05810
	4.6	150.0	35.0	225	PA66	Natural (NA)	100 pcs.	2-10	111-05819
T50R	4.6	200.0	50.0	225	PA66	Black (BK)	100 pcs.	2-10	111-05000
	4.6	200.0	50.0	225	PA66	Natural (NA)	100 pcs.	2-10	111-05013
T50M	4.6	245.0	65.0	225	PA66	Natural (NA)	100 pcs.	2-10	111-06201
	4.6	245.0	65.0	225	PA66	Black (BK)	100 pcs.	2-10	111-06200
T50I	4.6	300.0	85.0	225	PA66	Black (BK)	100 pcs.	2-10	111-05210
	4.6	300.0	85.0	225	PA66	Natural (NA)	100 pcs.	2-10	111-05219
T50L	4.6	390.0	110.0	225	PA66	Black (BK)	100 pcs.	2-10	111-05400
	4.6	390.0	110.0	225	PA66	Natural (NA)	100 pcs.	2-10	111-05409
T50LL	4.6	445.0	130.0	225	PA66	Black (BK)	500 pcs.	2-10	111-06002
T80R	4.7	210.0	55.0	355	PA66	Natural (NA)	100 pcs.	2-12	111-05019
	4.7	210.0	55.0	355	PA66	Black (BK)	100 pcs.	2-12	111-08010

All dimensions in mm. Subject to technical changes. Minimum Order Quantity (MOQ) may differ from package content. Other packaging options may also be available.

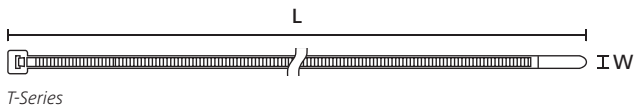


For product specific approvals and specifications please refer to the Appendix.



Cable Ties Polyamide 6.6 standard

T-Series in PA66 natural and black



Material specification please see page 26.

TYPE	Width (W)	Length (L)	Bundle Ø max.		Material	Colour	Pack Cont.	Tools	Article-No.
T80I	4.7	300.0	85.0	355	PA66	Natural (NA)	100 pcs.	2-12	111-08229
	4.7	300.0	85.0	355	PA66	Black (BK)	100 pcs.	2-12	111-08210
T80L	4.7	390.0	110.0	355	PA66	Black (BK)	100 pcs.	2-12	111-05410
	4.7	390.0	110.0	355	PA66	Natural (NA)	100 pcs.	2-12	111-05419
T120S	7.6	225.0	55.0	535	PA66	Natural (NA)	50 pcs.	3;9-12	111-12829
T120I	7.6	300.0	80.0	535	PA66	Black (BK)	100 pcs.	3;9-12	111-12210
	7.6	300.0	80.0	535	PA66	Natural (NA)	100 pcs.	3;9-12	111-12219
T150R	7.6	365.0	100.0	670	PA66	Black (BK)	100 pcs.	3;9-12	111-14810
	7.6	365.0	100.0	670	PA66	Natural (NA)	100 pcs.	3;9-12	111-14819
T120R(E)	7.6	387.0	100.0	535	PA66	Black (BK)	100 pcs.	3;9-12	111-12010
	7.6	387.0	100.0	535	PA66	Natural (NA)	100 pcs.	3;9-12	111-12019
T120M	7.6	460.0	125.0	535	PA66	Black (BK)	100 pcs.	3;9-12	111-12610
	7.6	460.0	125.0	535	PA66	Natural (NA)	100 pcs.	3;9-12	111-12619
T120XM	7.6	600.0	175.0	535	PA66	Black (BK)	50 pcs.	3;9-12	111-12701
	7.6	600.0	175.0	535	PA66	Natural (NA)	50 pcs.	3;9-12	111-12704
T120L	7.6	760.0	225.0	535	PA66	Black (BK)	50 pcs.	3;9-12	111-12403
	7.6	760.0	225.0	535	PA66	Natural (NA)	50 pcs.	3;9-12	111-12429
T150M	8.9	530.0	150.0	780	PA66	Black (BK)	25 pcs.	9-12	111-00124
	8.9	530.0	150.0	780	PA66	Natural (NA)	25 pcs.	9-12	111-15619
T150L	8.9	820.0	243.8	780	PA66	Black (BK)	25 pcs.	9-12	111-15405
	8.9	820.0	243.8	780	PA66	Natural (NA)	25 pcs.	9-12	111-15419
T150XL	8.9	1,095.0	330.2	780	PA66	Black (BK)	25 pcs.	9-12	111-15500
	8.9	1,095.0	330.2	780	PA66	Natural (NA)	25 pcs.	9-12	111-15519
T150XLL	8.9	1,325.0	406.4	780	PA66	Black (BK)	25 pcs.	9-12	111-15300
	8.9	1,325.0	406.4	780	PA66	Natural (NA)	25 pcs.	9-12	111-15304
T250R	12.4	515.0	124.5	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-24803
T250M	12.4	565.3	150.0	1,115	PA66	Black (BK)	25 pcs.	11-12	111-25001
	12.4	565.3	150.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-25002
T250I	12.4	730.0	203.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-25219
T250L	12.4	880.0	254.0	1,115	PA66	Black (BK)	25 pcs.	11-12	111-24601
T250XL	12.4	1,030.0	305.0	1,115	PA66	Black (BK)	25 pcs.	11-12	111-25200
	12.4	1,030.0	305.0	1,115	PA66	Natural (NA)	25 pcs.	11-12	111-00466
T250S	12.5	225.0	55.0	1,115	PA66	Natural (NA)	100 pcs.	11-12	111-24705
T250X	12.5	370.0	100.0	1,115	PA66	Black (BK)	100 pcs.	11-12	111-25102

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	MK3PNP2	EVO7	MK7HT	MK7P	MK6	EVO9	EVO9HT	MK9P
	545	545	546	546	548	549	550	551	549	549	552

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



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



Cable Ties in-between size to T-Series

LK-Series natural and black

For bundling and securing cables, pipes, hoses and other elements. These cable ties can be used for a countless number of applications. The LK-Series is similar to T-Series but offers in-between sizes to fit individual customer needs.

Features and benefits

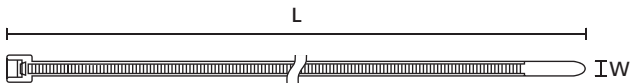
- Inside serrated cable ties for a strong hold around bundles
- Various materials and sizes are available
- High tensile strength with very low insertion force
- Easy application either manually or with an application tool



LK-Series – in-between size to T-Series.



Material specification please see page 26.



LK-Series

TYPE	Width (W)	Length (L)	Bundle Ø max.	N	Material	Colour	Pack Cont.	Tools	Article-No.
LK2A	4.6	270.0	73.0	225	PA66	Black (BK)	100 pcs.	2-10	111-60110
	4.6	270.0	73.0	225	PA66	Blue (BU)	100 pcs.	2-10	111-60104
	4.6	270.0	73.0	225	PA66	Natural (NA)	100 pcs.	2-10	111-60119
	4.6	270.0	73.0	225	PA66	Red (RD)	100 pcs.	2-10	111-60106
	4.6	270.0	73.0	225	PA66	Yellow (YE)	100 pcs.	2-10	111-60108
	4.6	270.0	73.0	225	PA66HIR	Black (BK)	500 pcs.	2-10	111-00118
	4.6	270.0	73.0	225	PA66HIR(S)	Black (BK)	100 pcs.	2-10	111-00127
	4.6	270.0	73.0	225	PA66HS	Black (BK)	100 pcs.	2-10	111-60150
	4.6	270.0	73.0	225	PA66HS	Brown (BN)	100 pcs.	2-10	111-60136
LK2	4.8	120.0	28.0	135	PA66	Natural (NA)	200 pcs.	2;4-8	111-60219
LK5	13.2	535.0	150.0	1,115	PA66	Black (BK)	50 pcs.	11-12	111-60510
	13.2	535.0	150.0	1,115	PA66	Natural (NA)	50 pcs.	11-12	111-60519
	13.2	535.0	150.0	1,115	PA66HIR(S)	Black (BK)	50 pcs.	11-12	111-60501
	13.2	535.0	150.0	1,115	PA66HS	Natural (NA)	50 pcs.	11-12	111-60559
	13.2	535.0	150.0	1,115	PA66W	Black (BK)	50 pcs.	11-12	111-60560

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
	545	545	546	546	548	549	550	551	549	549	552

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



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