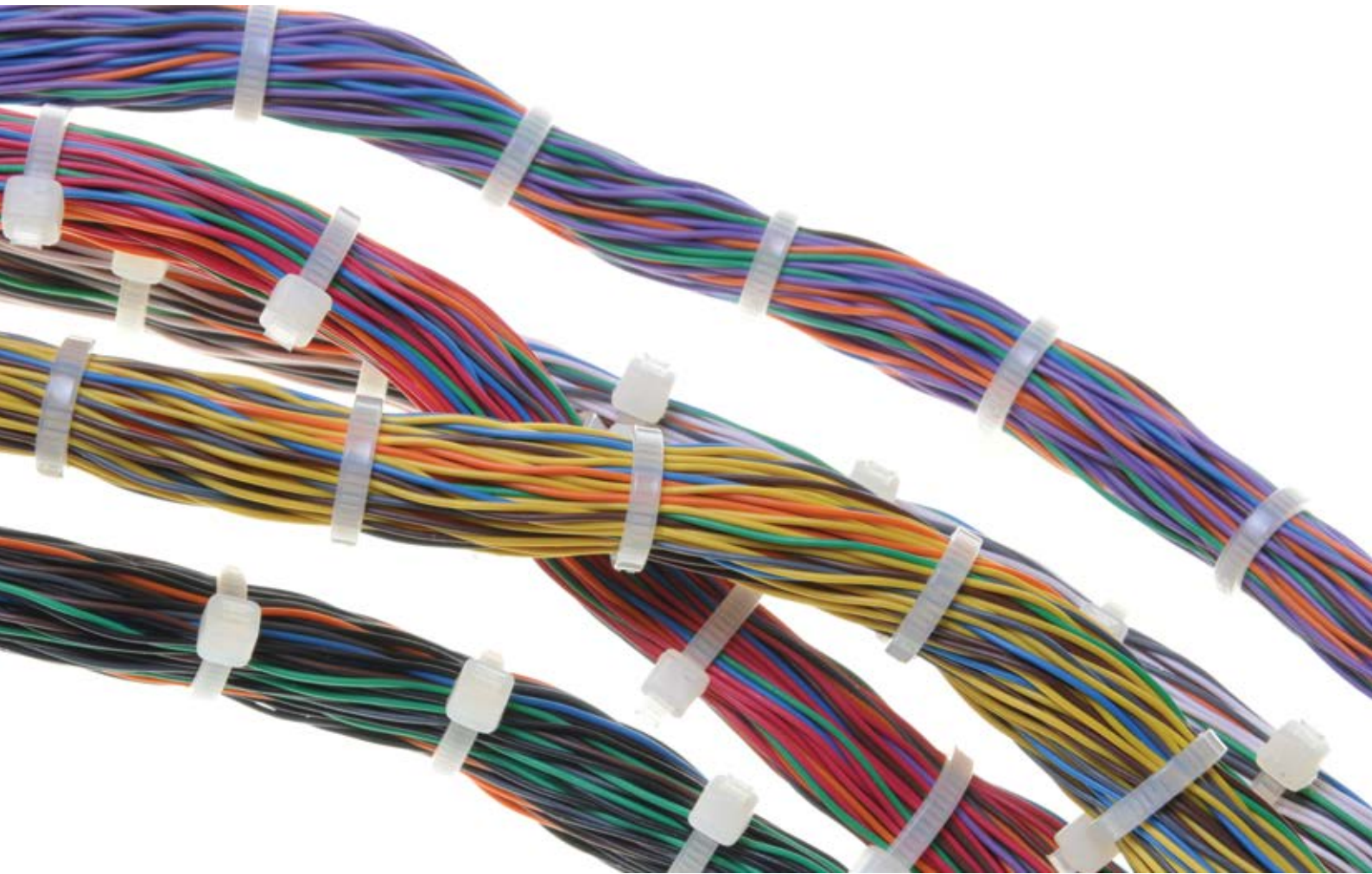




Your Personal Connection



## WKK: specialist in fixation materials

WKK is a leading importer and distributor that is specialized in fixation materials which offer a high quality solution for fixing, connecting, guiding and protecting cables for several industries. We serve customers throughout Europe from our office in The Netherlands, Germany, Italy and Poland.

### Extensive and deep range

WKK offers you a wide and deep range of fixation materials which comprises many different types of cable ties, heat shrink tubing, automotive / solar clips, cable glands, terminals, cable end-sleeves, grommets and braided sleeving. We also offer you the opportunity to have products custom made to meet your specific requirements.



1

## Solutions for fixing, connecting, guiding and protecting cables





## About WKK

WKK is a leading importer and distributor that is specialized in fixation materials. Whether you are looking for cable ties, heat shrink tubing, automotive / solar clips, cable glands, terminals, cable end-sleeves, grommets or braided sleeving, WKK can provide you with this. We serve customers throughout Europe from our office in The Netherlands, Germany, Italy and Poland.

### Europe's largest importer and distributor of cable ties

Since the founding in 1984, WKK works with a successful purchasing strategy for cable ties. Through ordering large quantities of high quality products from selected, long-standing suppliers on a weekly basis, WKK has grown to become Europe's largest importer and distributor of cable ties. This means that we can supply virtually every different type such as standard Polyamide 6.6 (PA 66), heat resistant, Polypropylene, Tefzel®, detectable, (un)coated stainless steel and many other types of cable ties against competitive prices.

### European importer and distributor of Hongshang heat shrink tubing

Since 2010, WKK has been an authorized importer and distributor of heat shrink tubing and accessories from the Asian quality brand Hongshang.

This gives WKK the opportunity to offer European customers an extensive range of heat shrinkable products such as thin-wall / dual-wall / special / medium-wall and heavy-wall heat shrink tubing, and busbar insulation tubing. In short, WKK's Hongshang Polyolefin heat shrink tubing offers you a solution for many different applications.

### Development and production of fixation clips

Through our subsidiary WKK Automotive, WKK has access to its own production facility for the development and production of plastic clips for the automotive industry and other markets such as the solar market. The clips are used for the fixation and guidance of cables in vehicles and on profiles.

WKK offers you an extensive range of fixation clips such as edge clips (also for corrugated tubing), clips with fir tree & with arrowhead and solar clips which are suitable for different profile thicknesses and hole diameters. We also offer you the opportunity to have clips custom made to meet your specific requirements.

## Milestones

To give you an impression of the founders of WKK and the developments that our company has been through in recent years, we have outlined a number of milestones below that show the history of WKK:

- 1984:** founding of WKK Nederland by Mr Edward Willems and Mr Jozef Kouwenberg
- 1992:** founding of subsidiary WKK GmbH
- 2002:** founding of subsidiary WKK Polska Sp. z o. o.
- 2008:** founding of subsidiary WKK Italy s.r.l.
- 2009:** founding of subsidiary WKK Automotive. This subsidiary focuses on the development and production of plastic clips for the automotive and solar industry
- 2010:** appointed as authorised European importer and distributor of Hongshang heat shrink tubing and accessories
- 2011:** founding of subsidiary WKK Shanghai. This subsidiary focuses on the assembly of special fixation clips for the automotive and solar industry
- 2013:** founding of subsidiary WKK Energy GmbH. This subsidiary focuses on cable accessories and heat shrink tubing

Over the years, the companies of WKK have gradually built up a good and reliable reputation throughout Europe. This reputation is due to the fact that WKK supplies fixation materials to virtually every European country.





**Office The Netherlands (headoffice)**

WKK Nederland B.V.  
Polluxstraat 1  
5047 RA Tilburg  
The Netherlands

Telephone : +31(0)13 571 21 71  
Fax : +31(0)13 571 25 25  
E-mail : sales@wkk.nl  
Website : www.wkk.eu



**Office Germany**

WKK GmbH  
An der Kleinbahn 2  
41334 Nettetal-Kaldenkirchen  
Germany

Telephone : +49(0)2157 13 89 0  
Fax : +49(0)2157 13 89 99  
E-mail : verkauf@wkk-deutschland.de  
Website : www.wkk-deutschland.de



**Office Italy**

WKK Italy s.r.l.  
Via dell'Edilizia 106  
36100 Vicenza (VI)  
Italy

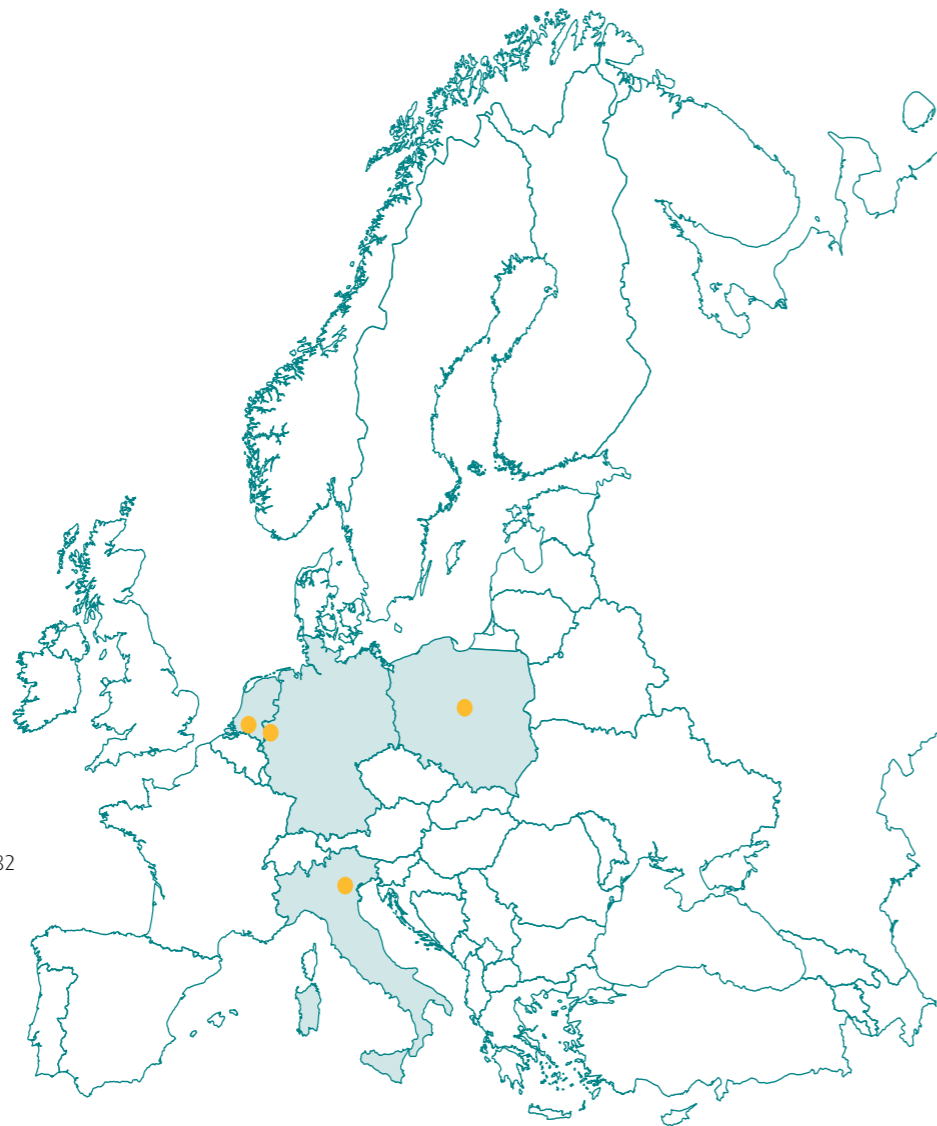
Telephone : +39 0444 27 62 18  
Fax : +39 0444 34 92 17  
E-mail : info@wkk-italy.com  
Website : www.wkk-italy.com



**Office Poland**

WKK Polska Sp. z o. o.  
ul. Swietej Teresy od Dzieciatka Jezus 182  
91-222 Łódź  
Poland

Telephone : +48 42 640 74 91  
Fax : +48 42 640 74 93  
E-mail : biuro@wkk.com.pl  
Website : www.wkk.com.pl



We serve customers throughout Europe from our office in  
The Netherlands, Germany, Italy and Poland



**Why WKK**

Are you looking for a reliable partner to supply your fixation materials, but do you find it difficult to make the correct choice from the various suppliers? WKK would like to explain what we stand for, what we can offer you as a customer and why you should choose WKK as your partner.

**Extensive range**

WKK offers an extensive and deep range of fixation materials such as cable ties, heat shrink tubing, automotive / solar clips, cable glands, terminals, cable end-sleeves, grommets and braided sleeving. Thus, you only have one point of contact.

**Attractive prices**

WKK purchases large quantities of fixation materials from leading suppliers on a weekly basis. We have long term relationships with these suppliers and as a result, we receive favourable purchasing conditions and can offer our customers competitive prices.

**Quality**

Reliability and quality are of utmost importance to WKK. Thus, we only supply high quality products, spend a lot of time and attention on quality control and improving our products, services and employees, and we are ISO 9001 certified.

**Expertise**

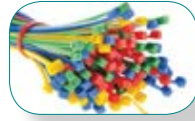
We would like to share the expertise that WKK has built up over the last 30 years with you. In particular, our knowledge in the fields of installation, maintenance and repair is of high-added value. Our sales team would be happy to advise you on the fixation materials that you require.

**Fast delivery**

When you place an order at WKK, you can rely on fast delivery. We hold all common types of cable ties, heat shrink tubing and clips in stock. In addition to fast delivery, WKK is also flexible to your requirements regarding the sending of your order.

**Excellent service**

WKK guarantees excellent service and personal attention. We will gladly assist you during the order and delivery process and offer you several possibilities for this. Therefore, you can have custom made products with private label or call orders.



## 1.0 Cable ties and accessories

<b>1.1</b>	<b>WKK cable ties</b> .....	<b>12</b>
	Standard cable ties.....	14
	Heat resistant cable ties.....	15
	Polypropylene cable ties.....	16
	Tefzel® cable ties.....	16
	Detectable cable ties.....	17
	Stainless steel cable ties.....	18
	Stainless steel cable ties - Coated.....	19
	Releasable cable ties.....	20
	Push mount cable ties.....	20
	Marker cable ties.....	21
	Chassis cable ties.....	21
	Airconditioning cable ties.....	22
	Mountable head cable ties.....	22
<b>1.2</b>	<b>WKK accessories for cable ties</b> .....	<b>23</b>
	Self adhesive cable tie mounts.....	23
	Wallplug for cable ties up to 9 mm wide.....	23
	Saddle tie mounts.....	24
	Tools for cable ties.....	24
<b>1.3</b>	<b>ABB/T&amp;B cable ties</b> .....	<b>25</b>
	<i>Ty-Rap® high performance cable ties</i> .....	
	Product reference structure.....	25
	Polyamide 6.6 cable ties - Natural.....	26
	Polyamide 6.6 cable ties - UV-resistant black.....	27
	Polyamide 6.6 cable ties - Coloured.....	28
	Polyamide 6.6 cable ties - Natural - Euroslot packaging.....	29
	Polyamide 6.6 cable ties - UV-resistant black - Euroslot packaging.....	30
	Polyamide 6.6 cable ties - Workbench boxes.....	31
	Polyamide 6.6 cable ties - Flame retardant.....	32
	Polyamide 6.6 cable ties - Heat stabilised.....	33
	Polyamide 6.6 cable ties - Heat stabilised + UV-resistant.....	34
	Polyamide 4.6 cable ties - Extra high temperature.....	35
	Polyamide 12 cable ties - UV-resistant.....	36
	Polypropylene cable ties - Weatherable.....	37
	Detectable cable ties.....	38
	Fluoropolymer cable ties - ETFE.....	39
	<i>Special ties with steel locking barb</i> .....	
	Integrated mounting hole cable ties.....	40
	Panel mounting cable ties.....	41
	<i>Ty-Fast® all plastic cable ties</i> .....	
	Product reference structure.....	42
	Standard cable ties.....	43
	Extra-long cable ties.....	44
	Heavy-duty cable ties.....	45
	<i>Ty-Met™ stainless steel cable ties</i> .....	
	Ball-lock type - Standard widths, uncoated.....	46
	Ball-lock type - Standard widths, fully coated.....	47
	Ball-lock type - Heavy-duty ties, uncoated.....	48
	Ball-lock type - Heavy-duty ties, fully coated.....	49
<b>1.4</b>	<b>ABB/T&amp;B accessories for cable ties</b> .....	<b>50</b>
	Tools for cable ties.....	50
<b>1.5</b>	<b>Material and storage</b> .....	<b>51</b>



## 2.0 Heat shrink tubing

<b>2.1</b>	<b>Thin-wall heat shrink tubing</b> .....	<b>54</b>
	H-2(Z) flexible / flame retardant / 2:1 / .....	54
	H-2(3X) flexible / flame retardant / 3:1 / .....	55
	H-2F flexible / flame retardant / 2:1 / mil spec 135 degrees.....	56
	H-2F(3X) flexible / flame retardant / 3:1 / mil spec 135 degrees.....	57
	H-2F(4X) flexible / flame retardant / 4:1 / mil spec 135 degrees.....	58
	H-2(HF) flexible / flame retardant / 2:1 / halogen free.....	59
	H-2F(Y/G) yellow/green striped / flexible / flame retardant / 2:1/3:1 / mil spec 135 degrees.....	60
	H-2(LS) flexible / flame retardant / 2:1 / low shrink temperature.....	62
	H-1 non flame retardant / 2:1 / .....	63
	HBG flexible / 2:1 / for flexible gas pipes.....	64
	Mini box type 1 flexible / flame retardant / 2:1 / H-2(Z).....	65
	Mini box type 2 flexible / flame retardant / 3:1 / H-2(3X).....	66
<b>2.2</b>	<b>Dual-wall heat shrink tubing</b> .....	<b>67</b>
	H-5(3X)-F and H-5(4X)-F flexible / flame retardant / 3:1/4:1 / adhesive lined.....	67
	HBK automotive / adhesive lined / 4:1.....	68
	Mini box type 3 flexible / flame retardant / 3:1 / adhesive lined / H-5(3X)-F.....	69
<b>2.3</b>	<b>Special heat shrink tubing</b> .....	<b>70</b>
	H-175K Kynar® / 175 degrees / 2:1.....	70
	H-200E and H-200E(TW) Viton® / 200 degrees / 2:1.....	71
	HTFE Teflon® / 260 degrees / 1,5:1.....	72
	H-2(XT) insulation sleeve.....	73
	HDR diesel-resistant / 2:1.....	74
	HFSP fiber optic splice protector.....	75
<b>2.4</b>	<b>Medium-wall heat shrink tubing</b> .....	<b>76</b>
	HRA2 and HR2 with and without hot melt adhesive.....	76
	HRTM with hot melt adhesive (co-extrusion).....	77
	HSTV with hot melt adhesive for CATV network.....	78
	HRS with mastic coating.....	79
<b>2.5</b>	<b>Heavy-wall heat shrink tubing</b> .....	<b>80</b>
	HRA3 and HR3 with and without hot melt adhesive.....	80
	HRTM with hot melt adhesive (co-extrusion).....	81
	HRA-6X with hot melt adhesive and extra high shrink ratio.....	82
	HRSL heat shrinkable cable repair sleeve with glue.....	83
<b>2.6</b>	<b>Busbar insulation tubing</b> .....	<b>84</b>
	HBM halogen free busbar insulation tubing.....	84
	HBTM and HBTH halogen free flexible busbar insulation tubing.....	85
<b>2.7</b>	<b>Moulded parts</b> .....	<b>86</b>
	HSEC and HCEC cable end caps with spiral adhesive coating.....	86
	HLB low voltage cable breakouts 2 - 5 cores.....	88
	HCB 3 - core conductive cable breakouts.....	90
	HCFT cable feed throughs.....	91
<b>2.8</b>	<b>Assortments heat shrink tubing</b> .....	<b>92</b>
	Assortment 1 127 pcs H-2(Z) heat shrink tubing (mixed colors).....	92
	Assortment 2 127 pcs H-2(Z) heat shrink tubing (black).....	92
	Assortment 3 465 pcs H-2(Z) heat shrink tubing (black).....	92
	Assortment heat shrink tubing in display H-2(Z) and H-5(3X)-F.....	93
<b>2.9</b>	<b>Selection table heat shrink tubing</b> .....	<b>94</b>
<b>2.10</b>	<b>Cross references heat shrink tubing</b> .....	<b>96</b>





### 3.0 Cable glands & accessories

<b>3.1 Polyamide cable glands &amp; accessories.....</b>	<b>100</b>
Polyamide PA6 V-2 Jacob cable glands, metric.....	100
Polyamide PA6 V-2 Jacob cable glands, PG.....	100
Polyamide PA6 GF30 Jacob hexagonal locknuts, metric.....	101
Polyamide PA6 GF30 Jacob hexagonal locknuts, PG.....	101
Polyamide PA6 GF30 Jacob screw plugs, metric.....	102
Polyamide PA6 GF30 Jacob screw plugs, PG.....	102
Polyamide PA6 V-2 Jacob screw plugs, metric.....	103
Polyamide PA6 GF30 Jacob enlargers, metric.....	104
Polyamide PA6 GF30 Jacob enlargers, PG.....	105
Polyamide PA6 GF30 Jacob adapters, metric to PG.....	106
Polyamide PA6 GF30 Jacob adapters, PG to metric.....	107
Polyamide PA6 GF30 Jacob reductions, metric.....	108
Polyamide PA6 GF30 Jacob reductions, PG.....	109
<b>3.2 Brass cable glands &amp; accessories.....</b>	<b>110</b>
Brass Jacob cable glands, metric.....	110
Brass Jacob cable glands, PG.....	111
Brass Jacob hexagonal locknuts, metric.....	112
Brass Jacob hexagonal locknuts, PG.....	113
Brass Jacob screw plugs, metric.....	114
Brass Jacob screw plugs, PG.....	115
Brass Jacob enlargers, metric.....	116
Brass Jacob enlargers, PG.....	117
Brass Jacob adapters, metric to PG.....	118
Brass Jacob adapters, PG to metric.....	119
Brass Jacob reductions, metric.....	120
Brass Jacob reductions, PG.....	121
<b>3.3 Stainless steel cable glands &amp; accessories.....</b>	<b>122</b>
Stainless steel Jacob cable glands, metric.....	122
Stainless steel Jacob hexagonal locknuts, metric.....	122
<b>3.4 EMC cable glands &amp; accessories.....</b>	<b>123</b>
EMC brass Jacob cable glands, metric.....	123
EMC stainless steel Jacob cable glands, metric.....	123
Brass Jacob hexagonal locknuts, metric.....	124

<b>3.5 Ex cable glands &amp; accessories.....</b>	<b>125</b>
Ex Polyamide PA6 Jacob cable glands, metric.....	125
Ex brass Jacob cable glands, metric.....	126
Ex EMC brass Jacob cable glands, metric.....	127
Brass Jacob hexagonal locknuts, metric.....	128
Ex brass Jacob screw plugs, metric.....	129
Ex brass Jacob enlargers, metric.....	130
Ex brass Jacob reductions, metric.....	131
<b>3.6 Cable glands for special applications.....</b>	<b>132</b>
Polyamide PA6 V-2 Jacob cable glands with spiral top, metric.....	132
Polyamide PA6 V-2 Jacob cable glands with spiral top, PG.....	132
Polyamide PA6 GF25 Jacob cable glands, elbow, metric.....	133
Polyamide PA6 GF25 Jacob cable glands, elbow, PG.....	133
Zinc die-casting Jacob cable glands, elbow, metric.....	134
Zinc die-casting Jacob cable glands, elbow, PG.....	134
Polyamide PA6 V-2 Jacob "Perfect fix" cable glands, metric.....	135
<b>3.7 Venting elements.....</b>	<b>136</b>
Polyamide PA6 V-0 Jacob venting elements, metric.....	136
Stainless steel Jacob venting elements, metric.....	137
<b>3.8 Sealing inserts &amp; accessories.....</b>	<b>138</b>
Sealing inserts, metric.....	138
Blanking plugs, metric.....	139
Sealing rings, metric and PG.....	140
O-rings, metric.....	141
<b>3.9 Cable entry plates.....</b>	<b>142</b>
Cable entry plate KADP.....	142
Cable entry plate KADL.....	143
<b>3.10 Junction boxes.....</b>	<b>144</b>



## 4.0 Terminals

PVC insulated ring terminals.....	148
PVC insulated spade terminals.....	149
PVC insulated female disconnectors.....	150
PVC fully insulated female disconnectors.....	151
PVC insulated piggy-back connectors.....	152
PVC insulated male disconnectors.....	152
PVC insulated butt connectors.....	153
Heat shrinkable butt connectors.....	153
Solder butt connectors.....	154
PVC fully insulated receptacle disconnectors.....	154
PVC insulated bullet disconnectors.....	155
PVC insulated pin terminals.....	155
Non insulated DIN 46234 terminals.....	156
Non insulated terminals.....	158
Quick splice connectors single tab.....	160
Fuseholders.....	160
Tools for terminals.....	160
Assortments terminals.....	161



## 5.0 Cable end-sleeves

Cable end-sleeves non-insulated.....	164
Cable end-sleeves insulated.....	166
Cable end-sleeves double "Twins".....	168
Assortments cable end-sleeves.....	169
Tool for cable end-sleeves.....	169



## 6.0 Fixation clips

6.1 Edge clips.....	172
6.2 Edge clips for corrugated tubing.....	174
6.3 Clips with fir tree & with arrowhead.....	176
6.4 Solar clips.....	178
6.5 Custom made clips.....	179



## 7.0 Other fixation materials

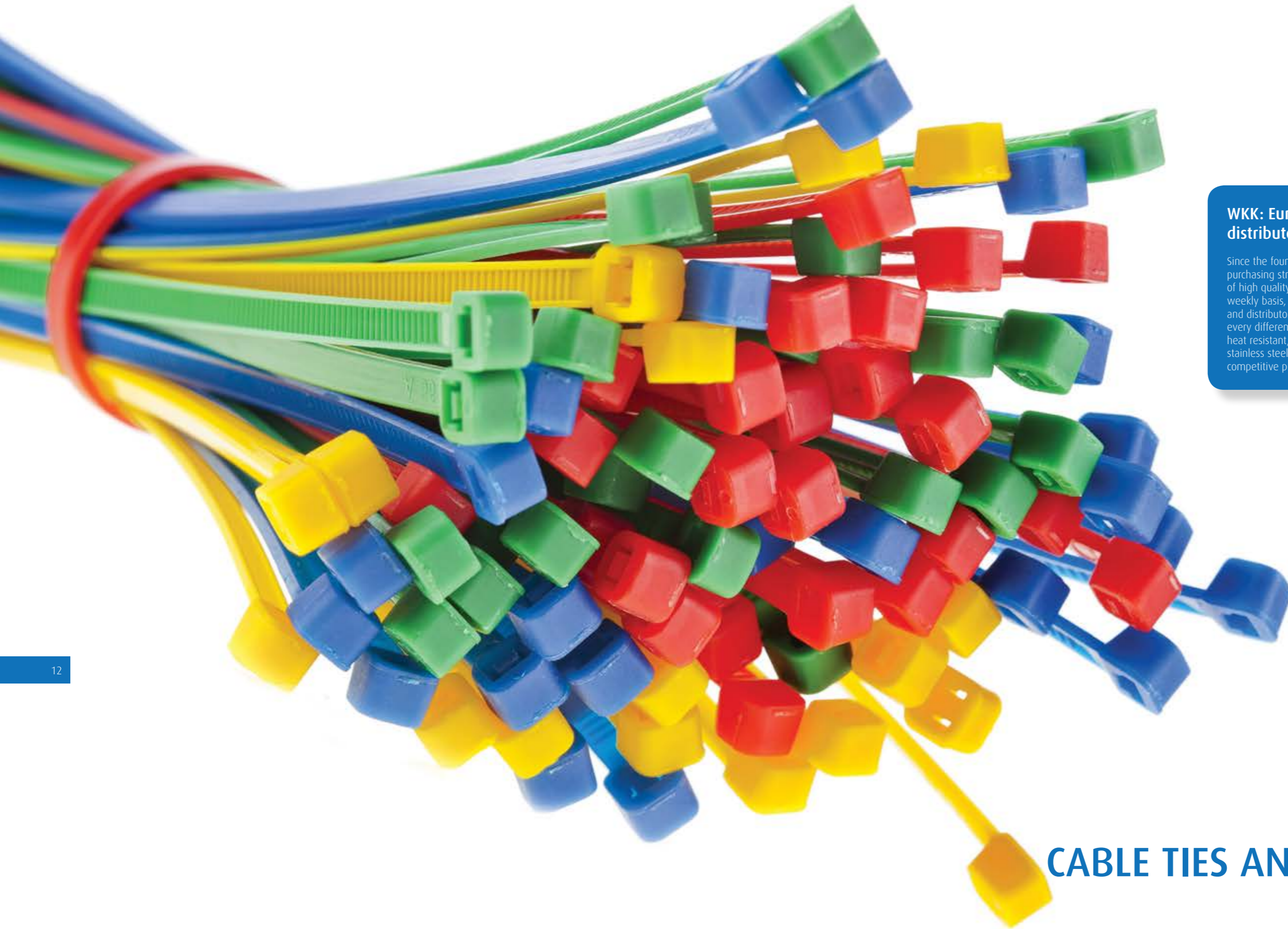
Sealing grommets.....	182
Twistlocks.....	183
Cable clamps.....	184
Clamp straps.....	184
Single floor clamps.....	185
Cable clips with nail.....	185
Braided sleeving.....	186
Wrapping bands.....	186
Hook and loop tape.....	187
Corrugated tubing PA6.....	187
Duct tape.....	188
PVC tapes.....	188
Double sided foam tapes.....	189
Self amalgating tapes.....	189



## 8.0 Appendix

8.1 General terms and conditions.....	192
8.2 Notes.....	194





**WKK: Europe's largest importer and distributor of cable ties**

Since the founding in 1984, WKK works with a successful purchasing strategy for cable ties. Through ordering large quantities of high quality products from selected, long-standing suppliers on a weekly basis, WKK has grown to become Europe's largest importer and distributor of cable ties. This means that we can supply virtually every different type such as standard Polyamide 6.6 (PA 66), heat resistant, Polypropylene, Tefzel®, detectable, (un)coated stainless steel and many other types of cable ties against competitive prices.

## CABLE TIES AND ACCESSORIES

## Standard cable ties

Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 : Other colors available on request  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2 (V0 available)  
 Certification : UL, Lloyd's, GL 59425-08HH



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)	Pcs per carton	
						100 pcs / pack	1.000 pcs / pack
80x2,4mm	80	2,4	15	8,0	100 / 1.000	70.000	90.000
100x2,5mm	100	2,5	22	8,1	100 / 1.000	55.000	70.000
120x2,5mm	120	2,5	30	8,1	100 / 1.000	45.000	65.000
140x2,5mm	140	2,5	33	8,1	100 / 1.000	45.000	55.000
160x2,5mm	160	2,5	40	8,1	100 / 1.000	40.000	45.000
200x2,5mm	200	2,5	53	8,1	100 / 1.000	30.000	32.000
140x3,6mm	140	3,6	33	18,2	100 / 1.000	30.000	30.000
150x3,6mm	150	3,6	35	18,2	100 / 1.000	30.000	30.000
200x3,6mm	200	3,6	53	18,2	100 / 1.000	20.000	22.000
300x3,6mm	300	3,6	76	18,2	100 / 1.000	17.000	17.000
370x3,6mm	370	3,6	102	18,2	100 / 1.000	12.000	12.000
120x4,8mm	120	4,8	24	22,2	100 / 1.000	20.000	25.000
160x4,8mm	160	4,8	38	22,2	100 / 1.000	16.000	18.000
190x4,8mm	190	4,8	46	22,2	100 / 1.000	16.000	16.000
200x4,8mm	200	4,8	50	22,2	100 / 1.000	16.000	16.000
250x4,8mm	250	4,8	60	22,2	100 / 1.000	12.000	12.000
280x4,8mm	280	4,8	70	22,2	100 / 1.000	11.000	11.000
300x4,8mm	300	4,8	76	22,2	100 / 1.000	11.000	11.000
370x4,8mm	370	4,8	102	22,2	100	9.000	-
390x4,8mm	390	4,8	105	22,2	100	8.500	-
430x4,8mm	430	4,8	110	22,2	100	7.500	-
530x4,8mm	530	4,8	140	22,2	100	5.600	-
150x7,6mm	150	7,6	33	54,4	100	8.000	-
200x7,6mm	200	7,6	50	54,4	100	7.000	-
250x7,6mm	250	7,6	65	54,4	100	6.000	-
300x7,6mm	300	7,6	76	54,4	100	5.000	-
370x7,6mm	370	7,6	102	54,4	100	4.000	-
450x7,6mm	450	7,6	132	54,4	100	2.500	-
530x7,6mm	530	7,6	140	54,4	100	2.000	-
615x7,6mm	615	7,6	176	54,4	100	2.000	-
750x7,6mm	750	7,6	218	54,4	100	2.000	-

For other types, please see the following page

Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)	Pcs per carton	
						100 pcs / pack	1.000 pcs / pack
430x9,0mm	430	9,0	110	79,4	100	2.500	-
530x9,0mm	530	9,0	140	79,4	100	2.000	-
610x9,0mm	610	9,0	187	79,4	100	2.000	-
710x9,0mm	710	9,0	190	79,4	100	2.000	-
780x9,0mm	780	9,0	228	79,4	100	2.000	-
830x9,0mm	830	9,0	239	79,4	100	1.500	-
920x9,0mm	920	9,0	263	79,4	100	1.200	-
1020x9,0mm	1020	9,0	295	79,4	100	1.000	-
1220x9,0mm	1220	9,0	365	79,4	100	1.000	-
1530x9,0mm	1530	9,0	460	79,4	100	500	-
230x13,0mm	230	13,0	50	114,0	100	3.000	-
480x13,0mm	480	13,0	120	114,0	100	1.500	-
580x13,0mm	580	13,0	152	114,0	100	1.200	-
730x13,0mm	730	13,0	204	114,0	100	1.000	-
880x13,0mm	880	13,0	248	114,0	100	600	-
1030x13,0mm	1030	13,0	295	114,0	100	600	-

## Heat resistant cable ties

Material : Polyamide 6.6 heat resistant  
 Color : Transparent (greenish) / black (UV resistant)  
 Sizes : Other sizes available on request  
 Temperature range : -40 °C up to +120 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
HEAT RES. 100x2,5mm	100	2,5	22	8,1	100 / 1000
HEAT RES. 120x2,5mm	120	2,5	30	8,1	100 / 1000
HEAT RES. 140x2,5mm	140	2,5	33	8,1	100 / 1000
HEAT RES. 160x2,5mm	160	2,5	40	8,1	100 / 1000
HEAT RES. 200x2,5mm	200	2,5	53	8,1	100 / 1000
HEAT RES. 140x3,6mm	140	3,6	33	18,2	100 / 1000
HEAT RES. 200x3,6mm	200	3,6	53	18,2	100 / 1000
HEAT RES. 300x3,6mm	300	3,6	76	18,2	100 / 1000
HEAT RES. 370x3,6mm	370	3,6	102	18,2	100 / 1000
HEAT RES. 200x4,8mm	200	4,8	50	22,2	100 / 1000
HEAT RES. 300x4,8mm	300	4,8	76	22,2	100 / 1000
HEAT RES. 370x4,8mm	370	4,8	102	22,2	100
HEAT RES. 430x4,8mm	430	4,8	110	22,2	100
HEAT RES. 200x7,6mm	200	7,6	50	54,4	100
HEAT RES. 300x7,6mm	300	7,6	76	54,4	100
HEAT RES. 370x7,6mm	370	7,6	102	54,4	100



## Polypropylene cable ties

Material : Polypropylene  
 Color : Green  
 Temperature range : -35 °C up to +85 °C  
 Properties : Acid resistant, floats, UV resistant  
 Flammability : UL 94 HB



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
POLYPROP. 100x2,5mm	100	2,5	22	4,0	100
POLYPROP. 140x3,6mm	140	3,6	33	9,0	100
POLYPROP. 190x4,8mm	190	4,8	46	14,0	100
POLYPROP. 200x4,8mm	200	4,8	50	14,0	100
POLYPROP. 300x4,8mm	300	4,8	76	14,0	100
POLYPROP. 370x4,8mm	370	4,8	102	14,0	100
POLYPROP. 200x7,6mm	200	7,6	50	22,2	100
POLYPROP. 370x7,6mm	370	7,6	102	22,2	100

## Tefzel® cable ties

Material : Tefzel® E/TFE (Ethylene-tetrafluorethylene)  
 Color : Aquamarine blue  
 Temperature range : -46 °C up to +150 °C  
 Flammability : UL 94 V0  
 Certification : RoHS  
 Resistency : UV, chemical fluids,  
 : radiation: 200 Mrad EEE383/323



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
TEFZEL 100x2,5mm	100	2,5	22	8,1	100
TEFZEL 150x3,6mm	150	3,6	35	18,2	100
TEFZEL 200x3,6mm	200	3,6	53	18,2	100
TEFZEL 200x4,8mm	200	4,6	50	22,2	100
TEFZEL 300x4,8mm	300	4,8	76	22,2	100
TEFZEL 370x4,8mm	370	4,8	102	22,2	100
TEFZEL 300x7,6mm	300	7,3	76	54,4	100
TEFZEL 370x7,6mm	370	7,4	102	54,4	100
TEFZEL 430x9,0mm	430	8,8	110	79,4	100

There is a minimum order quantity for Tefzel® cable ties

## Detectable cable ties

These cable ties are particularly suitable for applications in the food, pharmaceutical, animal feedstuffs and chemical industry. In these industries, special attention is paid to prevent product contamination by metal, X-ray and visual detection devices. Cut ends of cable ties must be avoided here.

### Optimal safety / Highest detectability

A unique manufacturing process, in which small metal parts are evenly mixed with the common used raw material for cable ties (Polyamide 6.6), makes it possible to detect small fragments of a cable tie. It should be noted that the density of the small metal parts in the WKK detectable cable ties is higher than in other types of detectable cable ties. This ensures that these cable ties have the largest magnetic attraction. A striking blue color of the cable tie makes visual detection possible. Both detection ways take care of an optimal safety / detectability.

### Comply with European regulations for HACCP

Detectable cable ties can help users to achieve European regulations for HACCP. HACCP is a systematic, preventive approach of food safety which tackles physical, chemical and biological risks by way of prevention rather than inspection of finished products.

### Product information

Material : Polyamide 6.6 containing the highest concentration evenly mixed  
 : small metal parts  
 Color : Blue  
 Temperature range : -40 °C up to +85 °C  
 Other properties : Halogen and silicone free

### Specifications

Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
DETECTABLE 150x3,6mm	150	3,6	35	14,6	100
DETECTABLE 200x4,8mm	200	4,8	50	17,8	100
DETECTABLE 300x4,8mm	300	4,8	76	17,8	100
DETECTABLE 370x4,8mm	370	4,8	102	17,8	100
DETECTABLE 370x7,6mm	370	7,6	102	43,5	100



## Detectable cable ties

Optimal safety / Highest detectability



## Stainless steel cable ties

Material : Stainless steel AISI 304 or AISI 316L  
 Color : Steel  
 Temperature range : -80 °C up to +538 °C  
 Certification : UL



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
ST.STEEL 125x4,6mm	125	4,6	38,0	90	100
ST.STEEL 200x4,6mm	200	4,6	61,9	90	100
ST.STEEL 290x4,6mm	290	4,6	90,6	90	100
ST.STEEL 360x4,6mm	360	4,6	112,8	90	100
ST.STEEL 520x4,6mm	520	4,6	163,8	90	100
ST.STEEL 680x4,6mm	680	4,6	214,8	90	100
ST.STEEL 840x4,6mm	840	4,6	265,7	90	100
ST.STEEL 200x7,9mm	200	7,9	61,9	160	100
ST.STEEL 290x7,9mm	290	7,9	90,6	160	100
ST.STEEL 360x7,9mm	360	7,9	112,8	160	100
ST.STEEL 450x7,9mm	450	7,9	141,0	160	100
ST.STEEL 520x7,9mm	520	7,9	163,8	160	100
ST.STEEL 680x7,9mm	680	7,9	214,8	160	100
ST.STEEL 840x7,9mm	840	7,9	265,7	160	100
ST.STEEL 1020x7,9mm	1020	7,9	320,0	160	100

## Stainless steel cable ties - Coated

Material : Stainless steel AISI 304 or AISI 316  
 Color : Steel (coated with Polyester for insulation purpose and a better outdoor application)  
 Temperature range : -40 °C up to +150 °C  
 Certification : UL



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
ST.STEEL 125x4,6mm COATED	125	4,6	38,0	90	100
ST.STEEL 200x4,6mm COATED	200	4,6	61,9	90	100
ST.STEEL 290x4,6mm COATED	290	4,6	90,6	90	100
ST.STEEL 360x4,6mm COATED	360	4,6	112,8	90	100
ST.STEEL 520x4,6mm COATED	520	4,6	163,8	90	100
ST.STEEL 680x4,6mm COATED	680	4,6	214,8	90	100
ST.STEEL 840x4,6mm COATED	840	4,6	265,7	90	100
ST.STEEL 200x7,9mm COATED	200	7,9	61,9	160	100
ST.STEEL 290x7,9mm COATED	290	7,9	90,6	160	100
ST.STEEL 360x7,9mm COATED	360	7,9	112,8	160	100
ST.STEEL 450x7,9mm COATED	450	7,9	141,0	160	100
ST.STEEL 520x7,9mm COATED	520	7,9	163,8	160	100
ST.STEEL 680x7,9mm COATED	680	7,9	214,8	160	100
ST.STEEL 840x7,9mm COATED	840	7,9	265,7	160	100
ST.STEEL 1020x7,9mm COATED	1020	7,9	320,0	160	100



## Releasable cable ties

Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 : Other colors available on request  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Width up to and including 4,8 mm



Width 7,6 mm



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
RELEASABLE 140x3,6mm	140	3,6	33	18,2	100
RELEASABLE 200x4,8mm	200	4,8	50	22,2	100
RELEASABLE 300x4,8mm	300	4,8	86	22,2	100
RELEASABLE 370x4,8mm	370	4,8	102	22,2	100
RELEASABLE 120x7,6mm	120	7,6	30	22,2	100
RELEASABLE 150x7,6mm	150	7,6	35	22,2	100
RELEASABLE 200x7,6mm	200	7,6	50	22,2	100
RELEASABLE 250x7,6mm	250	7,6	66	22,2	100
RELEASABLE 300x7,6mm	300	7,6	80	22,2	100
RELEASABLE 370x7,6mm	370	7,6	102	22,2	100

## Push mount cable ties

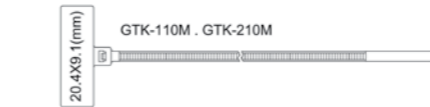
Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)	Hole diameter (mm)	Panel thickness (mm)	Type
PUSH MOUNT 110x2,5mm	110	2,5	22	8,1	100	Ø 4,8	~ 2,4	1
PUSH MOUNT 130x3,2mm	130	3,2	28	13,6	100	Ø 4,0	~ 2,0	1
PUSH MOUNT 130x4,8mm	130	4,8	25	22,2	100	Ø 6,4	~ 3,2	1
PUSH MOUNT 170x4,8mm	170	4,8	38	22,2	100	Ø 6,4	~ 3,2	1
PUSH MOUNT 190x4,8mm	190	4,8	45	22,2	100	Ø 6,4	~ 3,2	1
PUSH MOUNT 150x3,6mm	150	3,6	32	13,6	100	Ø 5,2	~ 2,8	2
PUSH MOUNT 200x4,8mm	200	4,8	46	22,2	100	Ø 6,3	~ 3,6	2

## Marker cable ties

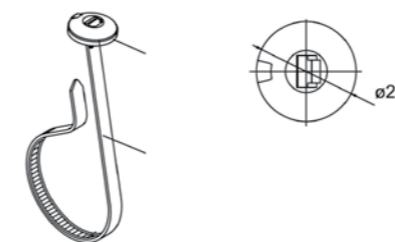
Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Type	Packing (pcs)
MT 110x2,5mm	110	2,5	18	8,1	GTK-110M	100
MT 210x2,5mm	210	2,5	50	8,1	GTK-210M	100
MT 100x2,5mm	100	2,5	18	8,1	GTK-100M	100
MT 200x2,5mm	200	2,5	50	8,1	GTK-200M	100
MT 190x4,8mm	190	4,8	46	22,2	GTK	100
MT 220x4,8mm	220	4,8	54	22,2	GTK	100
MT 270x4,8mm	270	4,8	65	22,2	GTK	100
MT 300x4,8mm	300	4,8	76	22,2	GTK	100
MT 370x4,8mm	370	4,8	102	22,2	GTK	100

## Chassis cable ties

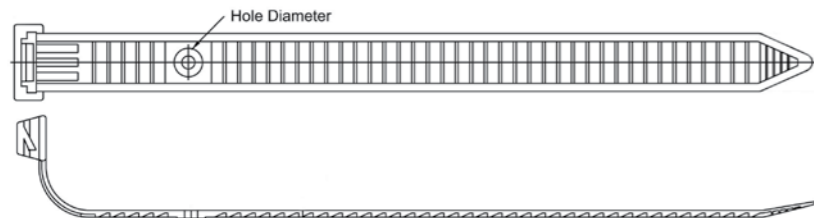
Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Packing (pcs)
CHASSIS 200x7,6mm	200	7,6	50	65	100
CHASSIS 370x7,6mm	370	7,6	101	65	100

## Airconditioning cable ties

Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Thickness (mm)	Hole diameter (mm)	Packing (pcs)
AIRCO 235x20mm	235	20	73	20	2,4	Ø 4,5	10
AIRCO 275x20mm	275	20	85	20	2,4	Ø 4,5	10

## Mountable head cable ties

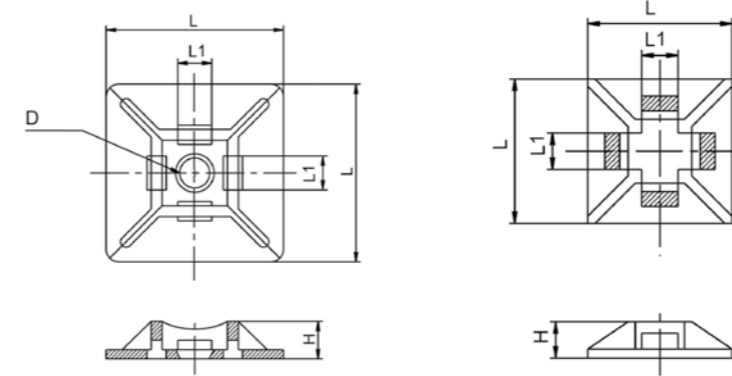
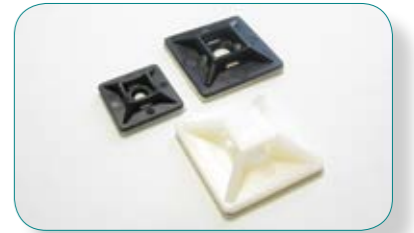
Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2  
 Certification : UL, Lloyd's



Typenr.	Length (mm)	Width (mm)	Max. bundle diameter (mm)	Tensile strength (kg)	Hole (mm)	Packing (pcs)
EYE 110x2,5mm	110	2,5	22	8,1	Ø 3,2	100
EYE 150x3,6mm	150	3,6	32	18,2	Ø 4,2	100
EYE 200x4,8mm	200	4,8	50	22,2	Ø 5,5	100
EYE 200x7,6mm	200	7,6	50	54,4	Ø 5,7	100
EYE 313x7,6mm	313	7,6	76	54,4	Ø 5,7	100
EYE 382x7,6mm	382	7,6	98	54,4	Ø 6,3	100

## Self adhesive cable tie mounts

Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2



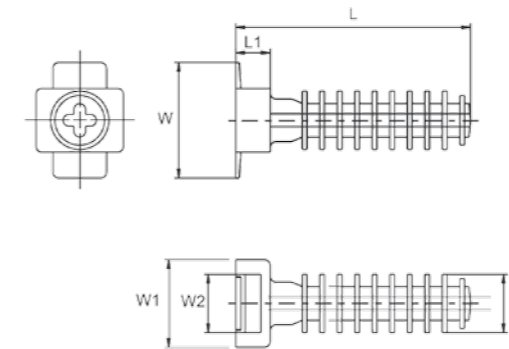
MB 19x19mm / MB 28x28mm

MB 12x12 mm

Typenr.	L (mm)	H (mm)	For cable tie width up to (mm)	D (mm)	Packing (pcs)
MB 12x12mm	12,7	3,2	3,2	-	100
MB 19x19mm	19,0	4,4	4,0	Ø 3,5	100
MB 28x28mm	27,7	5,7	5,3	Ø 5,7	100

## Wallplug for cable ties up to 9 mm wide

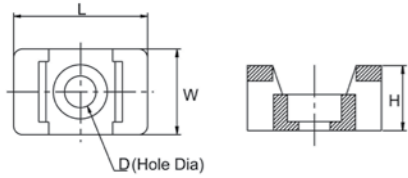
Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2



Typenr.	L (mm)	L1 (mm)	W (mm)	W1 (mm)	W2 (mm)	E (mm)	Packing (pcs)
GTN 9	40,5	5,9	20	15	10	Ø 9,5	100

## Saddle tie mounts

Material : Polyamide 6.6  
 Color : Transparent / black (UV resistant)  
 Temperature range : -40 °C up to +85 °C  
 Flammability : UL 94 V2



Typenr.	L (mm)	W (mm)	H (mm)	D (mm)	Tie width (mm)	Packing (pcs)
STM 2S6 14,9x9,5mm	14,9	9,5	7,2	Ø 3,7	4,8	100
STM 2S8 14,9x9,5mm	14,9	9,5	7,2	Ø 4,5	4,8	100
STM 3S8 21,9x15,9mm	21,9	15,9	9,7	Ø 4,5	7,6	100
STM 3S10 21,9x15,9mm	21,9	15,9	9,7	Ø 5,0	7,6	100
STM 3S25 21,9x15,9mm	21,9	15,9	9,7	Ø 6,4	7,6	100

## Tool 1 for cable ties

Type : Tool 1  
 Material : Metal  
 Color : Red  
 Use : For cable ties up to 4,8 mm  
 Bundling pressure : Adjustable / cable tie will be automatically cut-off



## Tool 114 for cable ties

Type : Tool 114  
 Material : Metal  
 Color : Red  
 Use : For cable ties from 3,6 up to 9,5 mm  
 Bundling pressure : Not adjustable / cable tie will not be automatically cut-off  
 : With extra grip for cutting-off cable ties



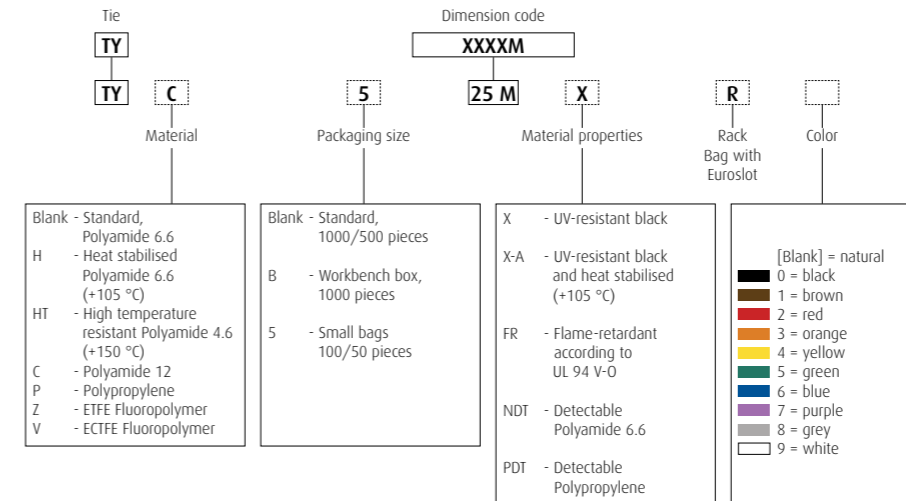
## Tool 30 for steel cable ties

Type : Tool 30  
 Material : Metal  
 Color : Grey  
 Use : For steel cable ties up to 7,96 mm  
 Bundling pressure : Adjustable / cable tie will be automatically cut-off



## Product reference structure Ty-Rap® high performance cable ties

Ty-Rap® code:



Note: Nylon (Polyamide) is inherently susceptible to environmental conditions. Ty-Rap® cable ties are moisturised to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use.



## Polyamide 6.6 cable ties - Natural

Ty-Rap® high performance cable ties

### Characteristics:

- Standard version (Polyamide 6.6), to cover most indoor applications
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot (see page 29) and in workbench boxes (see page 31)

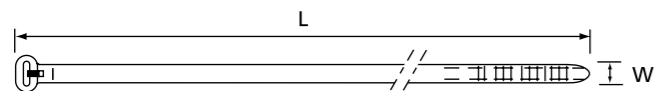
### Technical information:

Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -60 °C up to +85 °C
Min. installation temp.	: -20 °C
Colour	: Natural
Flammability rating	: UL 94 V-2
Other properties	: Halogen free, silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY23M	MS-3367-4	92	2.3	1.0	1.5 - 22	80	1000
TYB2315M	-	178	2.3	1.0	1.5 - 32	80	1000
TY232M	-	203	2.3	1.0	1.5 - 51	80	1000
TY234M	-	356	2.3	1.0	1.5 - 102	80	1000
TY24M	MS-3367-5	140	3.6	1.1	2 - 35	178	1000
TY242M	-	208	3.6	1.1	2 - 51	180	1000
TY26M	-	284	3.6	1.1	2 - 76	130	1000
TY244M	-	368	3.6	1.1	2 - 102	134	1000
TY25M	MS-3367-1	186	4.8	1.1	3 - 48	222	1000
TY253M	MS-3367-7	290	4.8	1.3	3 - 78	222	1000
TY28M	MS-3367-2	361	4.8	1.3	3 - 102	222	1000
TY271M	-	150	7.0	1.6	6 - 31	540	500
TY272M	-	223	6.9	1.6	6 - 51	534	500
TY27M	MS-3367-3	340	7.0	1.6	6 - 102	540	500
TY275M	-	457	7.0	1.6	6 - 127	540	500
TY277M	-	617	7.0	1.6	6 - 177	540	500
TY29M	MS-3367-6	771	6.9	1.5	6 - 229	540	500
TY53510M	-	889	8.2	1.7	to 254	780	50
TY54513M	-	1143	8.2	1.7	to 330	780	50



Description of product reference structure: see page 25



\* Some approvals may not be applicable to all the Product References.

## Polyamide 6.6 cable ties - UV-resistant black

Ty-Rap® high performance cable ties

### Characteristics:

- UV-resistant version, especially recommended for outdoor applications
- Black version (2% carbon for military specifications)
- Also available in heat stabilised + UV-resistant version (contains 2% carbon according to military application), for outdoor applications that also require a resistance to high temperature (+105 °C). See page 34 (TY...MX-A series)
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Packaging: OEM bulk quantities in recyclable polythene bags
- Also available in small bags with Euroslot (see page 30) and in workbench boxes (see page 31)

### Technical information:

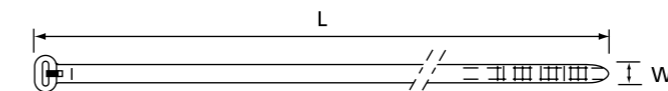
Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -60 °C up to +105 °C
Min. installation temp.	: -30 °C
Colour	: Black
Flammability rating	: UL 94 V-2
Other properties	: UV-resistant, halogen free, silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY23MX	MS-3367-4	92	2.3	1.0	1.5 - 22	80	1000
TYB2315MX	-	178	2.3	1.0	1.5 - 32	80	1000
TY232MX	-	203	2.3	1.0	1.5 - 51	80	1000
TY234MX	-	356	2.3	1.0	1.5 - 102	80	1000
TY24MX	MS-3367-5	140	3.6	1.1	2 - 35	180	1000
TY242MX	-	208	3.6	1.1	2 - 51	180	1000
TY26MX	-	284	3.6	1.1	2 - 76	130	1000
TY244MX	-	368	3.6	1.1	2 - 102	130	1000
TY25MX	MS-3367-1	186	4.8	1.1	3 - 48	220	1000
TY253MX	MS-3367-7	290	4.8	1.3	3 - 78	222	1000
TY28MX	MS-3367-2	361	4.8	1.3	3 - 102	222	1000
TY271MX	-	150	7.0	1.6	6 - 31	540	500
TY272MX*	-	223	6.9	1.6	6 - 51	540	500
TY27MX*	MS-3367-3	340	7.0	1.6	6 - 102	540	500
TY275MX*	-	457	7.0	1.6	6 - 127	540	500
TY277MX*	-	617	7.0	1.6	6 - 177	540	500
TY29MX*	MS-3367-6	771	6.9	1.5	6 - 229	540	500
TY53510MX	-	889	8.2	1.7	to 254	780	50
TY54513MX	-	1143	8.2	1.7	to 330	780	50



\* Min. installation temp: -40 °C

Description of product reference structure: see page 25



\*\* Some approvals may not be applicable to all the Product References.

## Polyamide 6.6 cable ties - Coloured

Ty-Rap® high performance cable ties

### Characteristics:

- Ty-Rap® ties in Polyamide 6.6 are available in 10 different colours and pre-printed ties in any of the standard colours can be supplied on demand.
- Several lengths and 6 typical widths with a tensile strength up to 780N, to cover the most demanding applications
- Standard packaging is 1.000/500 pieces but smaller packaging (100 pieces) can also be supplied on request
- Please contact your Sales Office for product availability and minimum order quantity

### Technical information:

Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -60 °C up to +85 °C
Min. installation temp.	: -20 °C
Flammability rating	: UL 94 V-2
Other properties	: Halogen free, silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity ** [pieces]
TY23M-*	MS-3367-4	92	2.3	1.0	1.5 - 22	80	1000
TY232M-*	-	203	2.3	1.0	1.5 - 51	80	1000
TY234M-*	-	356	2.3	1.0	1.5 - 102	80	1000
TY24M-*	MS-3367-5	140	3.6	1.1	2 - 35	180	1000
TY242M-*	-	208	3.6	1.1	2 - 51	180	1000
TY26M-*	-	284	3.6	1.1	2 - 76	130	1000
TY244M-*	-	368	3.6	1.1	2 - 102	134	1000
TY25M-*	MS-3367-1	186	4.8	1.1	3 - 48	222	1000
TY253M-*	MS-3367-7	290	4.8	1.3	3 - 78	222	1000
TY28M-*	MS-3367-2	361	4.8	1.3	3 - 102	222	1000
TY271M-*	-	150	7.0	1.6	6 - 31	540	500
TY272M-*	-	223	6.9	1.6	6 - 51	540	500
TY27M-*	MS-3367-3	340	7.0	1.6	6 - 102	540	500
TY275M-*	-	457	7.0	1.6	6 - 127	540	500
TY277M-*	-	617	7.0	1.6	6 - 177	540	500
TY29M-*	MS-3367-6	771	6.9	1.5	6 - 229	540	500
TY53510M-*	-	889	8.2	1.7	to 254	780	50
TY54513M-*	-	1143	8.2	1.7	to 330	780	50



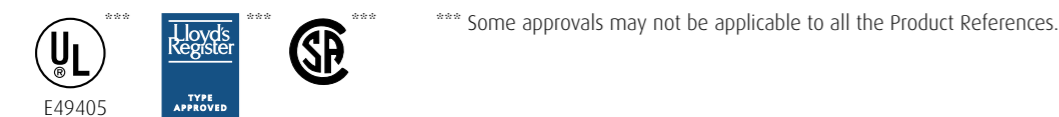
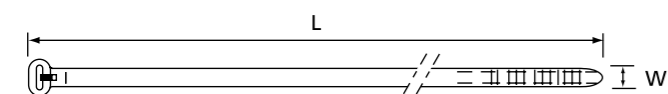
For cable ties in a specific colour, replace \* in the Product Reference by the colour code:  
0 = black, 1 = brown, 2 = red, 3 = orange, 4 = yellow, 5 = green, 6 = blue, 7 = purple, 8 = grey and 9 = white



For example: TY23M-1 defines a brown TY23M cable tie.

\*\* For smaller quantities, the figure "5" needs to be added to the part number immediately after "TY" - example: TY523M-2 is the same as TY23M-2 but in bags of 100

Description of product reference structure: see page 25



## Polyamide 6.6 cable ties - Natural - Euroslot packaging

Ty-Rap® high performance cable ties

### Characteristics:

- Standard version (Polyamide 6.6), to cover most indoor applications
- Packaging in small polythene bags with Euroslot, ideal for display and point-of-sales promotion (rack)
- Several lengths and 5 typical widths with a tensile strength up to 540N, to cover the most demanding applications
- Very convenient for small series production: 100 pieces (for cable ties from 2.3 mm to 4.8 mm width) or 50 pieces (for cable ties 6.9 mm width and above)

### Technical information:

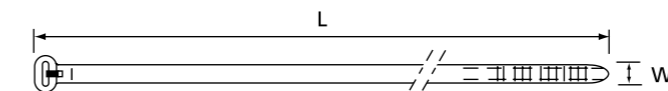
Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -60 °C up to +85 °C
Min. installation temp.	: -20 °C
Colour	: Natural
Flammability rating	: UL 94 V-2
Other properties	: Halogen free, silicone free

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY523MR	MS-3367-4	92	2.3	1.0	1.5 - 22	80	100
TY5232MR	-	203	2.3	1.0	1.5 - 51	80	100
TY5234MR	-	356	2.3	1.0	1.5 - 102	80	100
TY524MR	MS-3367-5	140	3.6	1.1	2 - 35	178	100
TY5242MR	-	208	3.6	1.1	2 - 51	180	100
TY526MR	-	284	3.6	1.1	2 - 76	130	100
TY5244MR	-	368	3.6	1.1	2 - 102	134	100
TY525MR	MS-3367-1	186	4.8	1.1	3 - 48	222	100
TY5253MR	MS-3367-7	290	4.8	1.3	3 - 78	222	100
TY528MR	MS-3367-2	361	4.8	1.3	3 - 102	222	100
TY5271MR	-	150	7.0	1.6	6 - 31	540	50
TY5272MR	-	223	6.9	1.6	6 - 51	534	50
TY527MR	MS-3367-3	340	7.0	1.6	6 - 102	540	50
TY5275M	-	457	7.0	1.6	6 - 127	540	50
TY5277M	-	617	7.0	1.6	6 - 177	540	50
TY529M	MS-3367-6	771	6.9	1.5	6 - 229	540	50



Product References TY5234M, TY5275M, TY5277M and TY529M have no Euroslot

Description of product reference structure: see page 25



\* Some approvals may not be applicable to all the Product References.

## Polyamide 6.6 cable ties - UV-resistant black - Euroslot packaging Ty-Rap® high performance cable ties

### Characteristics:

- UV-resistant version, especially recommended for outdoor applications
- Black version (2% carbon for military specifications)
- Packaging in small polythene bags with Euroslot, ideal for display and point-of-sales promotion (rack)
- Several lengths and 5 typical widths with a tensile strength up to 540N, to cover the most demanding applications
- Very convenient for small series production: 100 pieces (for cable ties from 2.3 mm to 4.8 mm width) or 50 pieces (for cable ties 6.9 width and above)

### Technical information:

Material - Moulding : Polyamide 6.6  
 Material - Locking barb : 316 grade stainless steel  
 Temperature range : -60 °C up to +105 °C  
 Min. installation temp. : -30 °C  
 Colour : Black  
 Flammability rating : UL 94 V-2  
 Other properties : Halogen free, silicone free

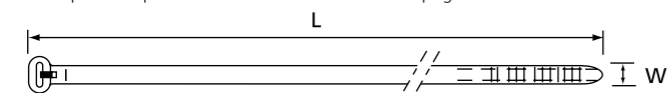
Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY523MXR	MS-3367-4	92	2.3	1.0	1.5 - 22	80	100
TY5232MXR	-	203	2.3	1.0	1.5 - 51	80	100
TY5234MX*	-	356	2.3	1.0	1.5 - 102	80	100
TY524MXR	MS-3367-5	140	3.6	1.1	2 - 35	180	100
TY5242MXR	-	208	3.6	1.1	2 - 51	180	100
TY526MXR	-	284	3.6	1.1	2 - 76	130	100
TY5244MXR	-	368	3.6	1.1	2 - 102	130	100
TY525MXR	MS-3367-1	186	4.8	1.1	3 - 48	220	100
TY5253MXR	MS-3367-7	290	4.8	1.3	3 - 78	222	100
TY528MXR	MS-3367-2	361	4.8	1.3	3 - 102	222	100
TY5271MXR	-	150	6.9	1.6	6 - 31	540	50
TY5272MXR*	-	223	6.9	1.6	6 - 51	540	50
TY527MXR*	MS-3367-3	340	7.0	1.6	6 - 102	540	50
TY5275MX*	-	457	7.0	1.6	6 - 127	540	50
TY5277MX*	-	617	6.9	1.6	6 - 177	540	50
TY529MX*	MS-3367-6	771	6.9	1.6	6 - 229	540	50



\* Min. installation temp: -40 °C

Product References TY5234MX, TY5275MX, TY5277MX and TY529MX have no Euroslot

Description of product reference structure: see page 25



\*\* Some approvals may not be applicable to all the Product References.

## Polyamide 6.6 cable ties - Workbench boxes Ty-Rap® high performance cable ties

### Characteristics:

- An attractive packaging option for high volume manual assembly: 1000 pieces in a workbench box - easy to reach, hence timesaving
- This user-friendly packaging allows fast working without problems or losses

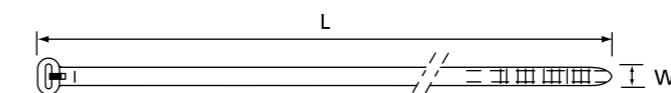
### Technical information:

Material - Moulding : Polyamide 6.6  
 Material - Locking barb : 316 grade stainless steel  
 Temperature range : -60 °C up to +85 °C (natural)  
 : -60 °C up to +105 °C (black)  
 Min. installation temp. : -20 °C (natural)  
 : -30 °C (black)  
 Colour : Natural or UV-resistant black  
 Flammability rating : UL 94 V-2  
 Other properties : Halogen free, silicone free, UV-resistant (black)

Product Ref.	MIL Spec.	Colour	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYB23M	MS-3367-4	natural	92	2.3	1.0	1.5 - 22	80	1000
TYB23MX	MS-3367-4	UV-resistant black	92	2.3	1.0	1.5 - 22	80	1000
TYB232M	-	natural	203	2.3	1.0	1.5 - 51	80	1000
TYB232MX	-	UV-resistant black	203	2.3	1.0	1.5 - 51	80	1000
TYB24M	MS-3367-5	natural	140	3.6	1.1	2 - 35	178	1000
TYB24MX	MS-3367-5	UV-resistant black	140	3.6	1.1	2 - 35	180	1000
TYB25M	MS-3367-1	natural	186	4.8	1.3	3 - 48	222	1000
TYB25MX	MS-3367-1	UV-resistant black	186	4.8	1.3	3 - 48	220	1000



Description of product reference structure: see page 25



\* Some approvals may not be applicable to all the Product References.



## Polyamide 6.6 cable ties - Flame retardant

Ty-Rap® high performance cable ties

### Characteristics:

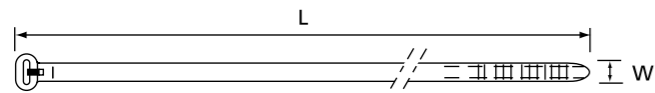
- Flame retardant version. Ideal for use when low flammability and low smoke are necessary such as public transport, tunnels, etc.

### Technical information:

Material - Moulding : Polyamide 6.6  
 Material - Locking barb : 316 grade stainless steel  
 Temperature range : -20 °C up to +65 °C  
 Min. installation temp. : -0 °C  
 Colour : White  
 Flammability rating : UL 94 V-0  
 Other properties : Halogen free, silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY23MFR	92	2.4	1.0	1.5 - 22	80	1000
TY232MFR	203	2.4	1.0	1.5 - 51	80	1000
TY24MFR	140	3.6	1.1	2 - 35	134	1000
TY25MFR	186	4.6	1.1	3 - 48	220	1000
TY28MFR	360	4.6	1.1	3 - 102	177	500
TY27MFR	335	7.6	1.6	6 - 95	540	500
TY272MFR	223	7.0	1.6	4.8 - 51	540	500

Description of product reference structure: see page 25



E49405



## Polyamide 6.6 cable ties - Heat stabilised

Ty-Rap® high performance cable ties

### Characteristics:

- Heat stabilised version, for applications up to +105 °C.

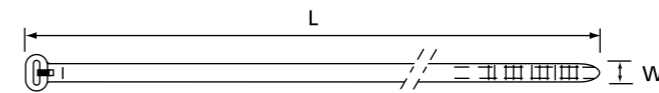
### Technical information:

Material - Moulding : Polyamide 6.6  
 Material - Locking barb : 316 grade stainless steel  
 Temperature range : -60 °C up to +105 °C  
 Min. installation temp. : -30 °C  
 Colour : Natural (may have a greenish tint)  
 Flammability rating : UL 94 V-2  
 Other properties : Halogen free, silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYH23M / TYHB23M	92	2.4	1.0	1.5 - 22	80	1000
TYH232M	203	2.4	1.0	1.5 - 51	80	1000
TYH24M	140	3.6	1.1	2 - 35	180	1000
TYH242M*	208	3.6	1.1	2 - 51	180	1000
TYH26M	284	3.6	1.1	2 - 76	130	1000
TYH25M	186	4.7	1.3	3 - 48	220	1000
TYH253M*	290	4.8	1.2	3 - 76	220	1000
TYH28M	360	4.8	1.3	3 - 102	220	1000
TYH272M*	222	7.6	1.6	4.8 - 51	540	500
TYH27M	340	7.0	1.6	4.8 - 102	540	500
TYH29M*	771	6.9	1.5	4.8 - 229	540	500

\* Not UL recognised

Description of product reference structure: see page 25



E49405



## Polyamide 6.6 cable ties - Heat stabilised + UV-resistant Ty-Rap® high performance cable ties

### Characteristics:

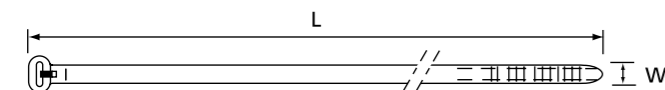
- Heat stabilised + UV-resistant version, for outdoor applications that also require a resistance to high temperature (+105 °C)
- For OEM and MRO applications like: transportation, lawn (garden / farm), construction equipment, recreational vehicles

### Technical information:

Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -60 °C up to +105 °C
Min. installation temp.	: -40 °C
Colour	: Black
Flammability rating	: UL 94 V-2
Other properties	: UV-resistant, heat stabilised, halogen free, silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY23MX-A	92	2.3	0.9	4.8 - 22	80	1000
TY24MX-A	140	3.6	1.1	5.2 - 35	133	1000
TY25MX-A	186	4.8	1.2	6.2 - 48	220	1000
TY27MX-A	340	6.9	1.6	8 - 95	540	500

Description of product reference structure: see page 25



## Polyamide 4.6 cable ties - Extra high temperature Ty-Rap® high performance cable ties

### Characteristics:

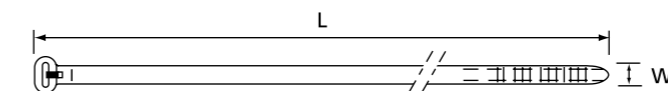
- Extreme continuous temperature rating: -40 °C up to +150 °C (in air)
- For high temperature environments in industrial, OEM, MRO and commercial construction applications such as: metal processing, paper mills, lighting, automotive

### Technical information:

Material - Moulding	: Polyamide 4.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -40 °C up to +150 °C
Min. installation temp.	: -18 °C
Colour	: Light green
Flammability rating	: UL 94 V-2
Other properties	: Extra high temperature resistant, halogen free, silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYHT23M	95	2.3	0.91	2 - 20	80	1000
TYHT24M	143	3.6	1.07	2 - 29	178	1000
TYHT25M	192	4.8	1.22	5 - 45	220	1000
TYHT28M	367	4.8	1.27	5 - 102	220	1000
TYHT27M	349	6.9	1.60	5 - 89	534	500
TYHT277M	617	7.0	1.60	6 - 177	540	500

Description of product reference structure: see page 25



## Polyamide 12 cable ties - UV-resistant

Ty-Rap® high performance cable ties

### Characteristics:

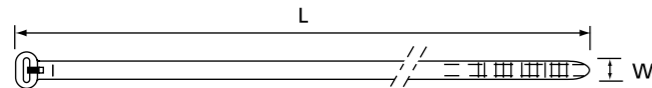
- Polyamide 12 UV-resistant version, remains flexible in cold & dry environments
- Ages better and has a better chemical resistance than Polyamide 6.6

### Technical information:

Material - Moulding	: Polyamide 12
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -40 °C up to +85 °C
Colour	: Black
Flammability rating	: UL 94 V-2
Other properties	: UV-resistant, halogen free, silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYC25MX	186	4.70	1.17	3.5 - 45	155	1000
TYC525MX	186	4.70	1.17	3.5 - 45	155	100
TYC28MX	360	4.70	1.20	3.5 - 102	155	1000
TYC272MX	222	7.60	1.60	6 - 51	380	500
TYC27MX	343	7.62	1.50	6 - 89	380	500
TYC527MX	343	7.62	1.50	6 - 89	380	50
TYC29MX	771	7.60	1.60	6 - 229	380	500

Description of product reference structure: see page 25



## Polypropylene cable ties - Weatherable

Ty-Rap® high performance cable ties

### Characteristics:

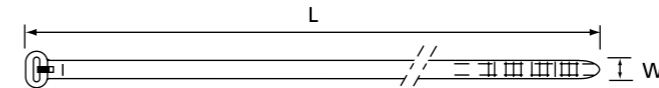
- Polypropylene weatherable version, for increased resistance to chemicals
- Resistant against inorganic acids, polyhydric alcohols, neutral and basic salts

### Technical information:

Material - Moulding	: Polypropylene
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -40 °C up to +85 °C
Colour	: Black
Flammability rating	: UL 94 HB
Other properties	: UV-resistant, halogen free, silicone free

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYP23MX	92	2.4	1.0	2 - 16	50	1000
TYP25MX	186	4.8	1.1	3.5 - 45	130	1000
TYP28MX	360	4.8	1.1	3.5 - 102	130	1000
TYP27MX	340	7.0	1.6	6 - 90	270	500

Description of product reference structure: see page 25





## Detectable cable ties

Ty-Rap® high performance cable ties

### Characteristics:

The Ty-Rap® detectable cable ties from ABB incorporate a unique compound (patent pending) that can be detected by X-Ray equipment, metal detectors and visual inspection equipment.

Particularly recommended for applications in food, pharmaceutical and other contaminationsensitive industries using detection systems, where cable tie installation residuals (cut tails) are not allowed in the finished product.

- Detectable by metal detectors set at minimum 1.5 mm diameter ferrous sphere
- Detectable by X-Ray equipment
- Bright blue colour for an easy visual detection
- Help achieve the HACCP EU-Directive
- Available in standard Polyamide 6.6 or in Polypropylene version for liquid-processing applications
- Available in 5 different sizes in convenient small bags with Euroslot: 5 NDT, 4 PDT

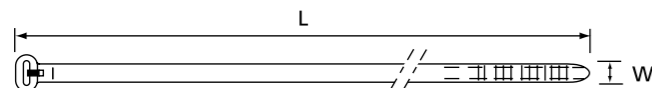
### Technical information:

Material - Moulding	: Polyamide 6.6 or Polypropylene
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -40 °C up to +85 °C
Colour	: Bright blue
Flammability rating	: UL 94 V-2 (Polyamide 6.6) : UL 94 HB (Polypropylene)
Other properties	: Halogen free, silicone free

Product Ref.	Material	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
<b>DETECTABLE POLYAMIDE 6.6</b>						
TY523M-NDT	Polyamide 6.6	92	2.4	2 - 16	80	100
TY524M-NDT	Polyamide 6.6	140	3.6	2 - 29	134	100
TY525M-NDT	Polyamide 6.6	186	4.8	3.5 - 45	180	100
TY528M-NDT	Polyamide 6.6	360	4.8	3.5 - 102	220	100
TY527M-NDT	Polyamide 6.6	340	7.0	6 - 90	540	50
<b>DETECTABLE POLYPROPYLENE</b>						
TY523M-PDT	Polypropylene	92	2.4	2 - 16	50	100
TY525M-PDT	Polypropylene	186	4.8	3.5 - 45	130	100
TY528M-PDT	Polypropylene	360	4.8	3.5 - 102	130	100
TY527M-PDT	Polypropylene	340	7.0	6 - 90	270	50



Description of product reference structure: see page 25



## Fluoropolymer cable ties - ETFE

Ty-Rap® high performance cable ties

### Characteristics:

- ETFE Fluoropolymer version, resistant to chemicals and to radiation
- Non-outgassing properties for zero gravity applications
- The best all around plastic material for cable ties
- Typical applications include: nuclear, power plants, space industry, etc.

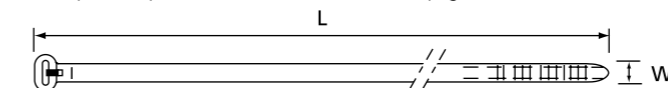
### Technical information:

Material - Moulding	: Fluoropolymer ETFE
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -60 °C up to +170 °C
Min. installation temp.	: -60 °C
Colour	: Aquamarine
Flammability rating	: UL 94 V-0
Other properties	: Silicone free, inert to most solvents and chemicals, : hydrolytically stable, radiation resistant. : Non-outgassing properties for zero gravity applications.

Product Ref.	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYZ23M*	92	2.3	1.10	1.5 - 22	80	1000
TYZ523M*	92	2.3	1.10	1.5 - 22	80	100
TYZ25M	186	4.3	1.66	3 - 48	220	1000
TYZ525M	186	4.3	1.66	3 - 48	220	100
TYZ28M	360	4.4	1.66	3 - 102	220	500
TYZ528M	360	4.3	1.66	3 - 102	220	100
TYZ27M***	340	6.8	1.85	6 - 95	540	100
TYZ527M***	340	6.8	1.85	6 - 95	540	50

\* Product Ref. TYZ23M and TYZ523M are UL listed (E49405), all other items are UL recognized  
\*\*\* Not on EC Declaration

Description of product reference structure: see page 25



## Integrated mounting hole cable ties

Special ties with steel locking barb

### Characteristics:

- Can be directly mounted onto a support with screws, bolts or rivets
- Mounting and bundling in one maintenance-friendly assembly
- Typical application: cable harness manufacture and pre- and end- mounting of bundles and parts. Maintenance friendly mounting of cables, tubes and parts in all types and sizes of machines and installations - indoor and outdoor

### Technical information:

Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -40 °C up to +85 °C
Colour	: Natural or UV-resistant black (see table)
Flammability rating	: UL 94 V-2
Other properties	: UV-resistant (black), halogen free, silicone free

Product Ref.	Colour	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY33M	natural	3.0	102	2.3	0.9	2 - 16	80	1000
TY533M	natural	3.0	102	2.3	0.9	2 - 16	80	100
TY33MX	UV-resistant black	3.0	102	2.3	0.9	2 - 16	80	1000
TY533MX	UV-resistant black	3.0	102	2.3	0.9	2 - 16	80	100
TY34M	natural	4.4	151	3.5	1.0	2 - 29	180	1000
TY534M	natural	4.4	151	3.5	1.0	2 - 29	180	100
TY34MX	UV-resistant black	4.4	151	3.5	1.0	2 - 29	180	1000
TY534MX	UV-resistant black	4.4	151	3.5	1.0	2 - 29	180	100
TY635M	natural	4.0	198	4.7	1.1	3.5 - 45	220	1000
TY635MX	UV-resistant black	4.0	198	4.7	1.1	3.5 - 45	220	1000
TY35M	natural	5.1	199	4.7	1.1	3.5 - 45	220	1000
TY535M	natural	5.1	199	4.7	1.1	3.5 - 45	220	100
TY35MX	UV-resistant black	5.1	199	4.7	1.1	3.5 - 45	220	1000
TY535MX	UV-resistant black	5.1	199	4.7	1.1	3.5 - 45	220	100
TY1435M	natural	6.7	198	4.7	1.1	3.5 - 45	220	1000
TY37M	natural	6.7	356	7.7	2.0	6 - 90	540	500
TY537M	natural	6.7	356	7.7	2.0	6 - 90	540	50
TY37MX	UV-resistant black	6.7	356	7.7	2.0	6 - 90	540	500
TY537MX	UV-resistant black	6.7	356	7.7	2.0	6 - 90	540	50
TYF35M	natural	4.0	186	4.7	1.2	3.5 - 45	220	1000
TYF535M	natural	4.0	186	4.7	1.2	3.5 - 45	220	100



## Panel mounting cable ties

Special ties with steel locking barb

### Characteristics:

- Fastening and clip-mounting in one
- Fast pre- or on-site-assembly for a range of panel thickness up to 4.0 mm
- Fast and secure clip-mounting

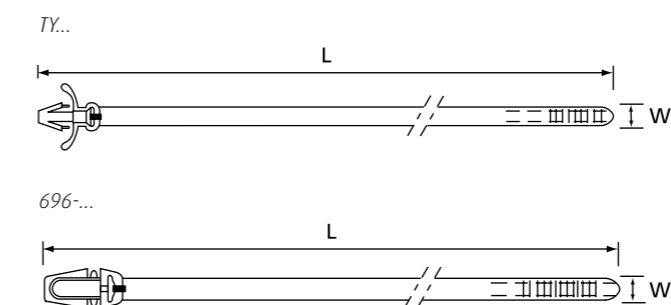
### Technical information:

Material - Moulding	: Polyamide 6.6
Material - Locking barb	: 316 grade stainless steel
Temperature range	: -40 °C up to +85 °C
Colour	: Natural or UV-resistant black (see table)
Flammability rating	: UL 94 V-2
Other properties	: UV-resistant (black), halogen free, silicone free

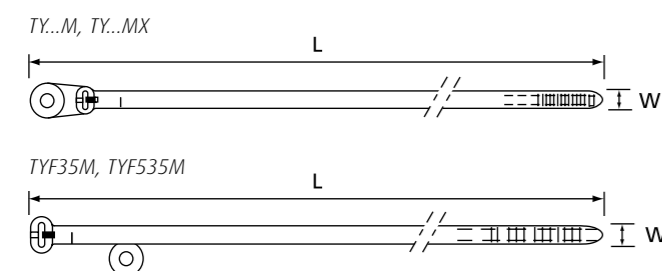
Product Ref.	Colour	Diameter of mounting hole [mm]	Length L [mm]	Width W [mm]	Thickness [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Suitable for board/wall thickness from to [mm]	Quantity [pieces]
<b>ANCHOR TYPE</b>									
TY545M	natural	4.5 - 5.2	150	3.5	1.0	2 - 32	130	0.1 - 2.5	1000
TY545MX	UV-resistant black	4.5 - 5.2	150	3.5	1.0	2 - 32	130	0.1 - 2.5	1000
TY38M	natural	6.4 - 6.7	200	4.7	1.3	3.5 - 44	220	1.0 - 4.0	1000
TY38MX	UV-resistant black	6.4 - 6.7	200	4.7	1.3	3.5 - 44	220	1.0 - 4.0	1000
<b>STANDARD TYPE</b>									
696-41836	natural	5.8 - 7.5	197	4.8	1.1	3.5 - 45	220	2.2 - 3.7	1000



Description of product reference structure: see page 25



Description of product reference structure: see page 25



VG \* approved

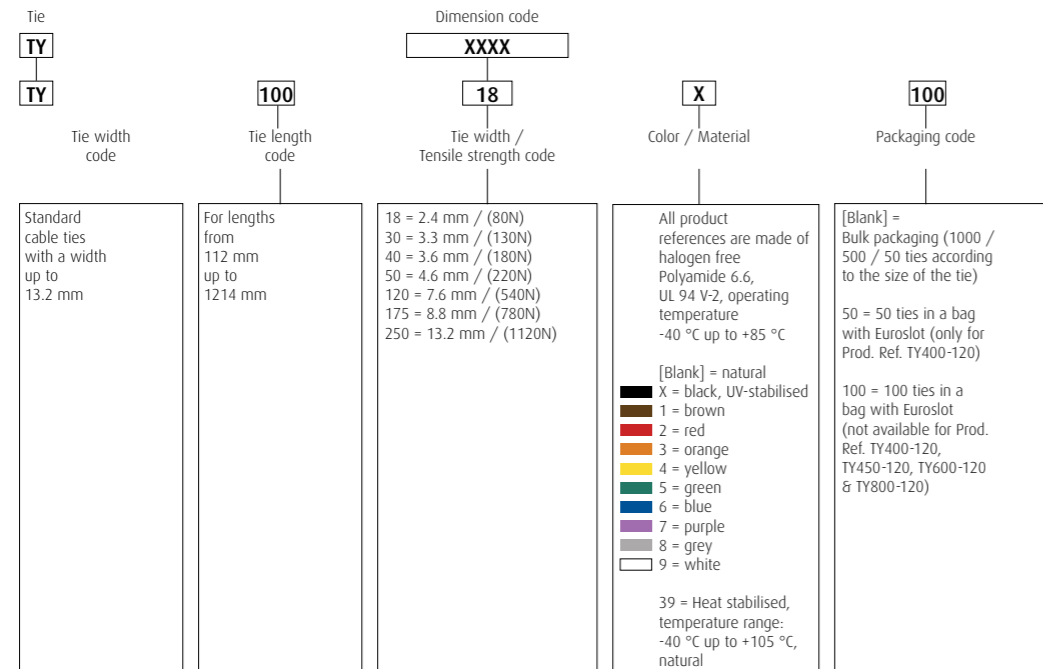
\* Some approvals may not be applicable to all the Product References.

VG95387 part 4, type B

## Product reference structure

All plastic cable ties

### Ty-Fast® code:



Note: Nylon (Polyamide) is inherently susceptible to environmental conditions. Ty-Fast® cable ties are moisturised to optimum performance levels at machine-side and should be stored in cool dry areas out of direct sunlight. Cable ties are packaged in plastic bags to contain moisture and should remain sealed until ready for use.

## Standard cable ties

All plastic cable ties

### Characteristics:

- State-of-the-art robotic and raw material handling equipment assures product and material integrity throughout the manufacturing process.
- The integrally formed Polyamide pawl combines low insertion and high locking strength
- A rounded, low-profile head makes for less snags
- Tails have improved two-sided finger grip design that helps the operator grasp and pull ties snug
- Sure grip tab keeps the tail from popping out while being threaded, then holds it securely for final tightening by hand or tool
- Quick and easy pull through increases productivity, reduces operator fatigue

### Technical information:

Material	: Polyamide 6.6 (*)
Temperature range	: -40 °C up to +85 °C (natural and colours, excl. UV-resistant black)
	: -40 °C up to +105 °C (black)
Min. installation temp.	: -20 °C
Colour	: Natural as standard colour (**)
Approvals	: MIL: MS 3367-x (see table)
Flammability rating	: UL 94 V-2
Other properties	: Halogen free, silicone free

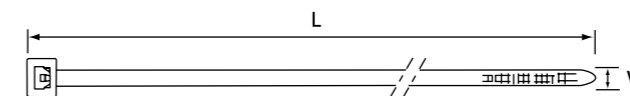
(\*) For other materials and colours see the product reference structure page 42

Product Ref.	MIL Spec.	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY100-18	MS-3367-4	115	2.4	1.5 - 25	80	1000
TY125-18	-	140	2.4	1.5 - 32	80	1000
TY150-18	-	157	2.4	1.5 - 38	80	1000
TY125-30	-	143	3.3	1.5 - 32	130	1000
TY125-40*	MS-3367-5	143	3.6	1.5 - 32	180	1000
TY200-40	-	205	3.6	1.5 - 50	180	1000
TY300-40	-	292	3.6	1.5 - 76	180	1000
TY400-40	-	370	3.6	6.35 - 102	180	1000
TY125-50	-	163	4.8	1.5 - 32	220	1000
TY175-50	MS-3367-1	188	4.8	3.17 - 44	220	1000
TY225-50	-	228	4.8	3.17 - 57	220	1000
TY300-50	MS-3367-7	304	4.8	3.17 - 76	220	1000
TY400-50	MS-3367-2	365	4.8	3.17 - 102	220	1000
TY200-120	-	220	7.6	15 - 50	540	500
TY300-120	-	288	7.6	15 - 76	540	100
TY400-120	MS-3367-3	374	7.6	15 - 102	540	50 / 100
TY450-120	-	456	7.6	15 - 124	540	50
TY600-120	-	634	7.6	15 - 184	540	50
TY800-120	MS-3367-6	718	7.6	6.35 - 204	540	50



\* Operation temperature: -30 °C up to +85 °C

Description of product reference structure: see page 42



\*\* Some approvals may not be applicable to all the Product References.



## Extra-long cable ties

All plastic cable ties

### Characteristics:

- Extremely long ties (up to 1214 mm)
- Robust construction (778N), for demanding applications where superior tensile strength is required
- The extra long Ty-Fast® ties are available in natural colour for indoor applications and in UV-resistant black for outdoor applications

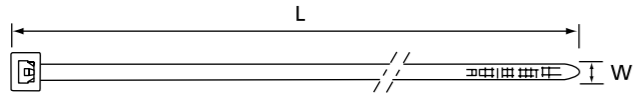
### Technical information:

Material : Polyamide 6.6  
 Temperature range : -40 °C up to +85 °C  
 Colour : Natural or UV-resistant black (see table)  
 Flammability rating : UL 94 V-2  
 Other properties : UV-resistant (black), halogen free, silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TY600-175X	UV-resistant black	631	9.0	7 - 187	778	50
TY600-175	Natural	631	9.0	7 - 187	778	50
TY900-175X	UV-resistant black	916	8.8	7 - 263	778	50
TY900-175	Natural	916	8.8	7 - 263	778	50
TY1000-175X	UV-resistant black	1041	8.8	7 - 305	778	50
TY1000-175	Natural	1041	8.8	7 - 305	778	50
TY1200-175	UV-resistant black	1233	8.6	38 - 368	778	50
TY1200-175	Natural	1233	8.6	38 - 368	778	50



Description of product reference structure: see page 42



## Heavy-duty cable ties

All plastic cable ties

### Characteristics:

- Extremely robust ties (1120N), for demanding applications where extreme tensile strength is required
- Available in natural colour for indoor applications and in UV-resistant black for outdoor applications

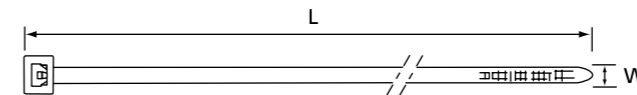
### Technical information:

Material : Polyamide 6.6  
 Temperature range : -40 °C up to +85 °C  
 Colour : Natural or UV-resistant black (see table)  
 Flammability rating : UL 94 V-2  
 Other properties : UV-resistant (black), halogen free, silicone free

Product Ref.	Colour	Length L [mm]	Width W [mm]	Bundle ø from ... to [mm]	Min. tensile strength [N]	Quantity [pieces]
TYL300M	Natural	300	13.2	75	1120	50
TYL300MX	UV-resistant black	300	13.2	75	1120	50
TYL546M	Natural	546	13.2	140	1120	50
TYL546MX	UV-resistant black	546	13.2	140	1120	50



Description of product reference structure: see page 42



## Ball-Lock Type – Standard widths, uncoated

Ty-Met™ Stainless steel cable ties

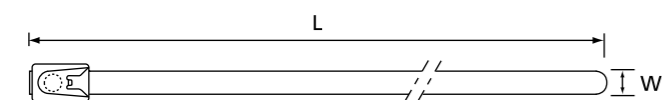
### Characteristics:

- The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Standard widths (4.6 mm & 7.9 mm), suitable for most applications, indoor and outdoor
- Uncoated version, suitable for high temperature environments
- 2 grades of non-magnetic stainless steel: 304 grade for standard applications and 316 grade (marine grade) for extra corrosion resistance
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

### Technical information:

Material	: A. 304 grade non-magnetic stainless steel
	: B. 316 grade non-magnetic stainless steel
Temperature range	: -40 °C up to +300 °C
Colour	: Metallic
Flammability rating	: Absolutely fireproof
Other properties	: UV-resistant

Product Ref. Stainless steel 304	Product Ref. Stainless steel 316	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strength [N]	Quantity [pieces]
YLS-4.6-100A	YLS-4.6-100B	100	4.6	0.26	20-25	778	100
YLS-4.6-125A	YLS-4.6-125B	125	4.6	0.26	20-25	778	100
YLS-4.6-150A	YLS-4.6-150B	150	4.6	0.26	20-35	778	100
YLS4.6-200A	YLS4.6-200B	200	4.6	0.26	20-50	778	100
YLS-4.6-300A	YLS-4.6-300B	300	4.6	0.26	20-83	778	100
YLS4.6-360A	YLS4.6-360B	360	4.6	0.26	20-100	778	100
YLS4.6-520A	YLS-4.6-520B	520	4.6	0.26	20-150	778	100
YLS-4.6-680A	YLS-4.6-680B	680	4.6	0.26	20-200	778	100
YLS-4.6-840A	YLS-4.6-840B	840	4.6	0.26	20-250	778	100
YLS-4.6-1000A	YLS-4.6-1000B	1000	4.6	0.26	20-300	778	100
YLS-4.6-1200A	YLS-4.6-1200B	1200	4.6	0.26	20-365	778	100
YLS-4.6-1400A	YLS-4.6-1400B	1400	4.6	0.26	20-425	778	100
YLS-7.9-100A	YLS-7.9-100B	100	7.9	0.26	20-20	1112	100
YLS-7.9-125A	YLS-7.9-125B	125	7.9	0.26	20-22	1112	100
YLS-7.9-150A	YLS-7.9-150B	150	7.9	0.26	20-35	1112	100
YLS7.9-200A	YLS-7.9-200B	200	7.9	0.26	20-50	1112	100
YLS-7.9-300A	YLS-7.9-300B	300	7.9	0.26	20-83	1112	100
YLS7.9-360A	YLS-7.9-360B	360	7.9	0.26	20-100	1112	100
YLS7.9-520A	YLS-7.9-520B	520	7.9	0.26	20-150	1112	100
YLS-7.9-680A	YLS-7.9-680B	680	7.9	0.26	20-200	1112	100
YLS-7.9-840A	YLS-7.9-840B	840	7.9	0.26	20-250	1112	100
YLS-7.9-1000A	YLS-7.9-1000B	1000	7.9	0.26	20-300	1112	100
YLS-7.9-1200A	YLS-7.9-1200B	1200	7.9	0.26	20-365	1112	100
YLS-7.9-1400A	YLS-7.9-1400B	1400	7.9	0.26	20-425	1112	100



\* Some approvals may not be applicable to all the Product References.

## Ball-Lock Type – Standard widths, fully coated

Ty-Met™ Stainless steel cable ties

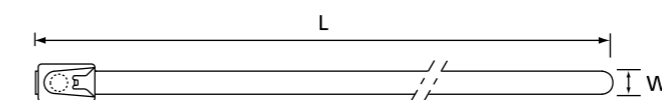
### Characteristics:

- The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Standard widths (4.6 mm & 7.9 mm), suitable for most applications, indoor and outdoor
- Corrosion resistant 316 grade stainless steel (marine grade) for high mechanical and chemical durability
- Fully coated version with non-toxic, halogen free Polyester coating, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

### Technical information:

Material	: 316 grade non-magnetic stainless steel
Coating	: Polyester
Temperature range	: -40 °C up to +165 °C
Colour	: Black
Flammability rating	: Absolutely fireproof
Other properties	: UV-resistant, halogen free, non toxic

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strength [N]	Quantity [pieces]
YLS-4.6-100BC	100	4.6	0.36	20-25	778	100
YLS-4.6-125BC	125	4.6	0.36	20-25	778	100
YLS4.6-150BC	150	4.6	0.36	20-35	778	100
YLS-4.6-200BC	200	4.6	0.36	20-50	778	100
YLS-4.6-300BC	300	4.6	0.36	20-83	778	100
YLS-4.6-360BC	360	4.6	0.36	20-100	778	100
YLS-4.6-520BC	520	4.6	0.36	20-150	778	100
YLS-4.6-680BC	680	4.6	0.36	20-200	778	100
YLS-4.6-840BC	840	4.6	0.36	20-250	778	100
YLS-4.6-1000BC	1000	4.6	0.36	20-300	778	100
YLS-4.6-1200BC	1200	4.6	0.36	20-365	778	100
YLS-4.6-1400BC	1400	4.6	0.36	20-425	778	100
YLS-7.9-100BC	100	7.9	0.36	20-20	1112	100
YLS-7.9-125BC	125	7.9	0.36	20-22	1112	100
YLS-7.9-150BC	150	7.9	0.36	20-35	1112	100
YLS-7.9-200BC	200	7.9	0.36	20-50	1112	100
YLS-7.9-300BC	300	7.9	0.36	20-83	1112	100
YLS-7.9-360BC	360	7.9	0.36	20-100	1112	100
YLS-7.9-520BC	520	7.9	0.36	20-150	1112	100
YLS-7.9-680BC	680	7.9	0.36	20-200	1112	100
YLS-7.9-840BC	840	7.9	0.36	20-250	1112	100
YLS-7.9-1000BC	1000	7.9	0.36	20-300	1112	100
YLS-7.9-1200BC	1200	7.9	0.36	20-365	1112	100
YLS-7.9-1400BC	1400	7.9	0.36	20-425	1112	100



\* Some approvals may not be applicable to all the Product References.

## Ball-Lock Type – Heavy-duty ties, uncoated

Ty-Met™ Stainless steel cable ties

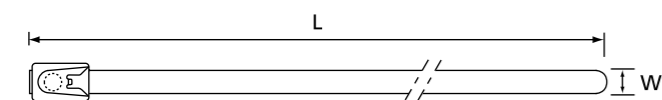
### Characteristics:

- The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Heavy-duty version (12 mm & 16 mm of width), for extreme applications, indoor and outdoor
- Uncoated version, suitable for high temperature environments
- Corrosion resistant 316 grade stainless steel (marine grade) for high mechanical and chemical durability
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

### Technical information:

Material : 316 grade non-magnetic stainless steel  
 Temperature range : -40 °C up to +300 °C  
 Colour : Metallic  
 Flammability rating : Absolutely fireproof  
 Other properties : UV-resistant

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strength [N]	Quantity [pieces]
YLS-12-200B	200	12.0	0.32	25-50	1117	50
YLS-12-300B	300	12.0	0.32	25-83	1117	50
YLS-12-360B	360	12.0	0.32	25-100	1117	50
YLS-12-440B	440	12.0	0.32	25-125	1117	50
YLS-12-520B	520	12.0	0.32	25-150	1117	50
YLS-12-600B	600	12.0	0.32	25-175	1117	50
YLS-12-680B	680	12.0	0.32	25-200	1117	50
YLS-12-760B	760	12.0	0.32	25-225	1117	50
YLS-12-840B	840	12.0	0.32	25-250	1117	50
YLS-12-1000B	1000	12.0	0.32	25-300	1117	25
YLS-12-1200B	1200	12.0	0.32	25-365	1117	25
YLS-12-1400B	1400	12.0	0.32	25-425	1117	25
YLS-16-200B	200	16.0	0.32	40-50	4005	50
YLS-16-300B	300	16.0	0.32	40-80	4005	50
YLS-16-360B	360	16.0	0.32	40-100	4005	50
YLS-16-440B	440	16.0	0.32	40-125	4005	50
YLS-16-520B	520	16.0	0.32	40-150	4005	50
YLS-16-600B	600	16.0	0.32	40-185	4005	50
YLS-16-680B	680	16.0	0.32	40-200	4005	50
YLS-16-760B	760	16.0	0.32	40-225	4005	50
YLS-16-840B	840	16.0	0.32	40-250	4005	50
YLS-16-1000B	1000	16.0	0.32	40-300	4005	25
YLS-16-1200B	1200	16.0	0.32	40-365	4005	25
YLS-16-1400B	1400	16.0	0.32	40-425	4005	25



\* Some approvals may not be applicable to all the Product References.

## Ball-Lock Type – Heavy-duty ties, fully coated

Ty-Met™ Stainless steel cable ties

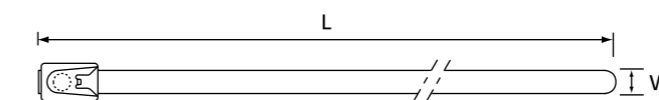
### Characteristics:

- The Ball-Lock Type stainless steel ties from ABB are self-locking, requiring no time consuming crimping or folding operations.
- Strong self-locking mechanism (stainless steel ball), with low insertion force
- Fast, easy and reliable installation
- Heavy-duty version (12 mm & 16 mm of width), for extreme applications, indoor and outdoor
- Corrosion resistant 316 grade stainless steel (marine grade) for high mechanical and chemical durability
- Fully coated version with non-toxic, halogen free Polyester coating, for a superior protection of cables and installer's hands and for an improved insulation between dissimilar materials
- Applications: installation of cables and pipes in extreme conditions and hazardous areas, such as: petrochemical and food processing industries, power stations, mining, shipbuilding, offshore and other aggressive environments

### Technical information:

Material : 316 grade non-magnetic stainless steel  
 Coating : Black Polyester  
 Temperature range : -40 °C up to +165 °C  
 Flammability rating : Absolutely fireproof  
 Other properties : UV-resistant, halogen free, non toxic

Product Ref.	Length L [mm]	Width W [mm]	Material thickness [mm]	Bundle ø from... to [mm]	Min. tensile strength [N]	Quantity [pieces]
YLS-12-200BC	200	12.0	0.42	25-50	1335	50
YLS-12-300BC	300	12.0	0.42	25-83	1335	50
YLS-12-360BC	360	12.0	0.42	25-100	1335	50
YLS-12-440BC	440	12.0	0.42	25-125	1335	50
YLS-12-520BC	520	12.0	0.42	25-150	1335	50
YLS-12-600BC	600	12.0	0.42	25-175	1335	50
YLS-12-680BC	680	12.0	0.42	25-200	1335	50
YLS-12-760BC	760	12.0	0.42	25-225	1335	50
YLS-12-840BC	840	12.0	0.42	25-250	1335	50
YLS-12-1000BC	1000	12.0	0.42	25-300	1335	25
YLS-12-1200BC	1200	12.0	0.42	25-365	1335	25
YLS-12-1400BC	1400	12.0	0.42	25-425	1335	25
YLS-16-200BC	200	16.0	0.42	40-50	2002	50
YLS-16-300BC	300	16.0	0.42	40-80	2002	50
YLS-16-360BC	360	16.0	0.42	40-100	2002	50
YLS-16-440BC	440	16.0	0.42	40-125	2002	50
YLS-16-520BC	520	16.0	0.42	40-150	2002	50
YLS-16-600BC	600	16.0	0.42	40-185	2002	50
YLS-16-680BC	680	16.0	0.42	40-200	2002	50
YLS-16-760BC	760	16.0	0.42	40-225	2002	50
YLS-16-840BC	840	16.0	0.42	40-250	2002	50
YLS-16-1000BC	1000	16.0	0.42	40-300	2002	25
YLS-16-1200BC	1200	16.0	0.42	40-365	2002	25
YLS-16-1400BC	1400	16.0	0.42	40-425	2002	25



## Technical information ERG50

Tool type : Ergonomic hand tool  
 Nose colour : Black  
 For type of cable tie : Plastic ties  
 For tie width : 2.4 mm - 4.8 mm  
 Features : Adjustable tension setting, automatic cutting,  
 : retraction of the strap end after application of  
 : Ty-Rap® cable ties  
 Weight : 260 g  
 Dimensions [L x W x H] : 178 x 127 x 38 mm



## Technical information ERG120

Tool type : Ergonomic hand tool  
 Nose colour : Orange  
 For type of cable tie : Plastic ties  
 For tie width : 4.8 mm - 7.6 mm  
 Features : Adjustable tension setting, automatic cutting,  
 : retraction of the strap end after application of  
 : Ty-Rap® cable ties  
 Weight : 278 g  
 Dimensions [L x W x H] : 178 x 127 x 38 mm



## Material specification overview

Material	Temperature range	Flammability	RoHS	Properties
Polyamide 6.6	-40 °C up to +85 °C (WKK) -40 °C up to +85 °C (ABB)	UL 94 V2 - (WKK & ABB) UL 94 V0 - (ABB, flame retardant version)	Yes (WKK) Yes (ABB)	
Polyamide 6.6 heat resistant	-40 °C up to +120 °C (WKK) -40 °C up to +105 °C (ABB)	UL 94 V2	Yes (WKK) Yes (ABB)	Higher maximum temperature
Polyamide 4.6 heat resistant	Not available (WKK) -40 °C up to +150 °C (ABB)	UL 94 V2	- (WKK) Yes (ABB)	Extra high temperature resistant
Polyamide 12	Not available (WKK) -40 °C up to +85 °C (ABB)	UL 94 V2	- (WKK) Yes (ABB)	UV-resistant, remains flexible in cold & dry environments
Polypropylene	-35 °C up to +85 °C (WKK) -40 °C up to +85 °C (ABB)	UL 94 HB	Yes (WKK) Yes (ABB)	Acid resistant, floats on water
Tefzel® E/TFE	-46 °C up to +150 °C (WKK) -60 °C up to +170 °C (ABB)	UL 94 V0	Yes (WKK) Yes (ABB)	Good chemical resistance, resistance to radioactivity
Polyamide 6.6 or Polypropylene containing evenly mixed small metal parts	-40 °C up to +85 °C (WKK) -40 °C up to +85 °C (ABB)	UL 94 V2 (WKK, Polyamide 6.6) UL 94 V2 (ABB, Polyamide 6.6) UL 94 HB (ABB, Polypropylene)	- (WKK) Yes (ABB) Yes (ABB)	Detectable by metal, X-ray and visual detection devices. Halogen and silicone free
Stainless steel AISI 304/316L	-80 °C up to +538 °C (WKK) -80 °C up to +300 °C (ABB)	Absolutely fireproof	- (WKK) Yes (ABB)	Suitable for high temperature environments
Coated stainless steel AISI 304/316	-40 °C up to +150 °C (WKK) -80 °C up to +150 °C (ABB)	Absolutely fireproof	- (WKK) Yes (ABB)	For insulation purpose and a better outdoor application

## Storage of (PA 66) cable ties

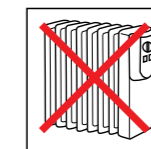
WKK supplies virtually all types of cable ties. Many of these types are made of Polyamide (PA 66): a synthetic material which is mainly used in injection moulding processes.

Polyamide is a hygroscopic material. This means that the material absorbs and loses moisture. For optimum handling of cable ties, it is important that the material is in a condition of equilibrium with a water content of approximately 2,5%.

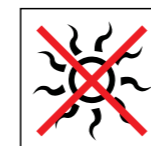
The packaging in which WKK supplies cable ties, ensures that the water content in the material remains constant. Therefore, it is important to store cable ties in their original packaging to preserve the quality of the cable ties.



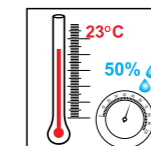
Always store cable ties in sealed plastic bags made of PE. Once opened, you should use the cable ties as quickly as possible.



Keep cable ties away from direct heat sources. Avoid contact with heat. For example: do not place a packing on a radiator.



Do not store cable ties in sunlight. For example: on the dashboard of your car / delivery van.



The ideal storage conditions are 23 °C, 50% relative humidity.



Official European Distributor of  
**Hongshang**

### WKK: European importer and distributor of Hongshang heat shrink tubing

Since 2010, WKK has been an authorized importer and distributor of heat shrink tubing and accessories from the Asian quality brand Hongshang. This gives WKK the opportunity to offer European customers an extensive range of heat shrinkable products such as thin-wall / dual-wall / special / medium-wall and heavy-wall heat shrink tubing, and busbar insulation tubing. In short, WKK's Hongshang Polyolefin heat shrink tubing offers you a solution for many different applications.

## HEAT SHRINK TUBING

## H-2(Z) Thin-wall heat shrink tubing / flexible / flame retardant / 2:1

- Features:**
- Crosslinked Polyolefin
  - Shrink ratio: 2:1
  - Flame retardant
  - General purpose
  - High flexibility

- Approvals:**
- UL224 125 °C VW-1 600 V file E204071
  - CSA file no.: 1934614
  - Meets: RoHS, Sony-SS-00259

- Application:**
- Operating temperature: -55 °C to +125 °C
  - Minimum shrink temperature: +70 °C
  - Minimum full recovery temperature: +100 °C
  - Longitudinal change: 0 ± 10% max.

- Order information:**
- Colors: black, red, blue, yellow, green, white, purple, brown, orange, grey
  - Other colors are available on request
  - Also available in various lengths and in mini boxes (please see page 65)



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2(Z) 1,2/0,6	1,2	0,6	0,33	150
H-2(Z) 1,6/0,8	1,6	0,8	0,36	150
H-2(Z) 2,4/1,2	2,4	1,2	0,44	150
H-2(Z) 3,2/1,6	3,2	1,6	0,44	150
H-2(Z) 4,8/2,4	4,8	2,4	0,51	75
H-2(Z) 6,4/3,2	6,4	3,2	0,56	75
H-2(Z) 9,5/4,8	9,5	4,8	0,56	75
H-2(Z) 12,7/6,4	12,7	6,4	0,65	50
H-2(Z) 16,0/8,0	16,0	8,0	0,69	50
H-2(Z) 19,0/9,5	19,0	9,5	0,80	30
H-2(Z) 25,4/12,7	25,4	12,7	0,90	30
H-2(Z) 32,0/16,0	32,0	16,0	0,90	30
H-2(Z) 38,1/19,0	38,1	19,0	1,00	30
H-2(Z) 50,8/25,4	50,8	25,4	1,00	30
H-2(Z) 76,2/38,1	76,2	38,1	1,20	15
H-2(Z) 102,0/50,8	102,0	50,8	1,30	15
H-2(Z) 126,0/63,5	126,0	63,5	1,30	15
H-2(Z) 150,0/76,0	150,0	76,0	1,30	15

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

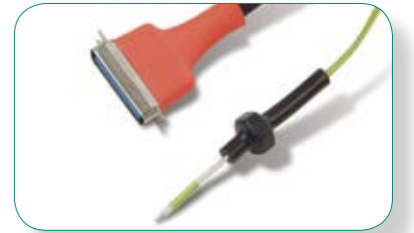
## H-2(3X) Thin-wall heat shrink tubing / flexible / flame retardant / 3:1

- Features:**
- Crosslinked Polyolefin
  - Shrink ratio: 3:1
  - Flame retardant
  - General purpose
  - High flexibility

- Approvals:**
- UL224 125 °C VW-1 600 V file E204071
  - CSA file no.: 1934614
  - Meets: RoHS, Sony-SS-00259

- Application:**
- Operating temperature: -55 °C to +125 °C
  - Minimum shrink temperature: +70 °C
  - Minimum full recovery temperature: +100 °C
  - Longitudinal change: 0 ± 10% max.

- Order information:**
- Color: black
  - Other colors: red, blue, yellow, green, white, brown, orange, purple, grey (flame retardant class 2)
  - Also available in mini boxes (please see page 66)



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2(3X) 1,5/0,5	1,5	0,5	0,45	150
H-2(3X) 3,0/1,0	3,0	1,0	0,55	150
H-2(3X) 4,5/1,5	4,8	1,5	0,60	75
H-2(3X) 6,0/2,0	6,4	2,0	0,65	75
H-2(3X) 9,0/3,0	9,5	3,0	0,75	75
H-2(3X) 12,0/4,0	12,7	4,0	0,80	50
H-2(3X) 18,0/6,0	19,1	6,0	0,90	30
H-2(3X) 24,0/8,0	25,4	8,0	1,00	30
H-2(3X) 39,0/13,0	39,0	13,0	1,25	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## H-2F

Thin-wall heat shrink tubing / flexible / flame retardant / 2:1 / mil spec 135 degrees

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- Flame retardant
- High flexibility

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- CSA file no.: 1934614
- Meets: RoHS, Sony-SS-00259
- Meets: SAE-AMS-DTL-23053/5 class 1 and 2

### Application:

- Operating temperature: -55 °C to +135 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black
- Other colors: red, blue, yellow, green, white (flame retardant class 1, size available up to 76,2 mm). Transparent (class 2, not flame retardant)



This type of heat shrink tubing is available with print (logo/text), except the color transparent. Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2F 1,2/0,6	1,2	0,6	0,40	150
H-2F 1,6/0,8	1,6	0,8	0,40	150
H-2F 2,4/1,2	2,4	1,2	0,48	150
H-2F 3,2/1,6	3,2	1,6	0,48	150
H-2F 4,8/2,4	4,8	2,4	0,48	75
H-2F 6,4/3,2	6,4	3,2	0,56	75
H-2F 9,5/4,8	9,5	4,8	0,62	75
H-2F 12,7/6,4	12,7	6,4	0,62	50
H-2F 16,0/8,0	16,0	8,0	0,68	50
H-2F 19,0/9,5	19,0	9,5	0,68	30
H-2F 25,4/12,7	25,4	12,7	0,87	30
H-2F 32,0/16,0	32,0	16,0	1,00	30
H-2F 38,1/19,0	38,1	19,0	1,00	30
H-2F 50,8/25,4	50,8	25,4	1,10	30
H-2F 76,2/38,1	76,2	38,1	1,20	15
H-2F 102,0/50,8	102,0	50,8	1,35	15
H-2F 126,0/63,5	126,0	63,5	1,40	15
H-2F 150,0/76,0	150,0	76,0	1,40	15

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## H-2F(3X)

Thin-wall heat shrink tubing / flexible / flame retardant / 3:1 / mil spec 135 degrees

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 3:1
- Flame retardant
- High flexibility

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- CSA file no.: 1934614
- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/5 class 1 and 2

### Application:

- Operating temperature: -55 °C to +135 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black
- Other colors: red, blue, yellow, green, white (flame retardant class 1). Transparent (class 2, not flame retardant)



This type of heat shrink tubing is available with print (logo/text), except the color transparent. Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2F(3X) 1,5/0,5	1,5	0,5	0,45	150
H-2F(3X) 3,0/1,0	3,0	1,0	0,55	150
H-2F(3X) 4,5/1,5	4,8	1,5	0,60	75
H-2F(3X) 6,0/2,0	6,4	2,0	0,65	75
H-2F(3X) 9,0/3,0	9,5	3,0	0,75	75
H-2F(3X) 12,0/4,0	12,7	4,0	0,80	50
H-2F(3X) 18,0/6,0	19,1	6,0	0,90	30
H-2F(3X) 24,0/8,0	25,4	8,0	1,20	30
H-2F(3X) 39,0/13,0	39,0	13,0	1,25	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## H-2F(4X)

Thin-wall heat shrink tubing / flexible / flame retardant / 4:1 / mil spec 135 degrees

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 4:1
- Flame retardant
- High flexibility

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- CSA file no.: 1934614
- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/5 class 1 and 2

### Application:

- Operating temperature: -55 °C to +135 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
H-2F(4X) 19,1/4,6	19,1	4,6	1,7	1220
H-2F(4X) 25,4/7,0	25,4	7,0	1,7	1220
H-2F(4X) 38,1/9,5	38,1	9,5	1,7	1220
H-2F(4X) 50,8/14,0	50,8	14,0	1,7	1220
H-2F(4X) 76,2/20,6	76,2	20,6	1,7	1220
H-2F(4X) 102,0/26,7	102,0	26,7	1,7	1220
H-2F(4X) 115,0/36,8	115,0	36,8	1,7	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## H-2(HF)

Thin-wall heat shrink tubing / flexible / flame retardant / 2:1 / halogen free

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- Flame retardant
- Halogen free
- Low smoke emission

### Approvals:

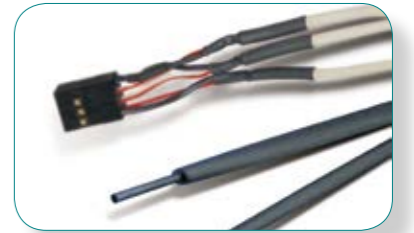
- UL224 125 °C VW-1 600 V
- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Colors: black and white
- Other colors are available on request



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2(HF) 1,2/0,6	1,2	0,6	0,33	300
H-2(HF) 1,6/0,8	1,6	0,8	0,36	300
H-2(HF) 2,4/1,2	2,4	1,2	0,44	300
H-2(HF) 3,2/1,6	3,2	1,6	0,44	300
H-2(HF) 4,8/2,4	4,8	2,4	0,51	150
H-2(HF) 6,4/3,2	6,4	3,2	0,56	150
H-2(HF) 9,5/4,8	9,5	4,8	0,56	75
H-2(HF) 12,7/6,4	12,7	6,4	0,65	75
H-2(HF) 16,0/8,0	16,0	8,0	0,69	75
H-2(HF) 19,0/9,5	19,0	9,5	0,80	50
H-2(HF) 25,4/12,7	25,4	12,7	0,90	50
H-2(HF) 32,0/16,0	32,0	16,0	1,02	30
H-2(HF) 38,1/19,0	38,1	19,0	1,02	30
H-2(HF) 50,8/25,4	50,8	25,4	1,14	30
H-2(HF) 76,2/38,1	76,2	38,1	1,27	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96



## H-2F(Y/G)

Thin-wall heat shrink tubing / yellow/green striped / flexible / flame retardant / 2:1/3:1 / mil spec 135 degrees

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1 and 3:1
- Flame retardant
- High flexibility

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- CSA file no.: 1934614
- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/5 class 1

### Application:

- Operating temperature: -55 °C to +135 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: yellow / green
- Also available in various lengths and in mini boxes



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

### Shrink ratio 3:1

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2F(Y/G) 3:1 2,4/0,8	2,4	0,8	0,51	150
H-2F(Y/G) 3:1 3,0/1,0	3,0	1,0	0,55	150
H-2F(Y/G) 3:1 4,5/1,5	4,8	1,5	0,60	75
H-2F(Y/G) 3:1 6,0/2,0	6,4	2,0	0,65	75
H-2F(Y/G) 3:1 9,0/3,0	9,5	3,0	0,75	75
H-2F(Y/G) 3:1 12,0/4,0	12,7	4,0	0,75	50
H-2F(Y/G) 3:1 18,0/6,0	19,1	6,0	0,85	30
H-2F(Y/G) 3:1 24,0/8,0	25,4	8,0	1,00	30
H-2F(Y/G) 3:1 39,0/13,0	39,0	13,0	1,15	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### Shrink ratio 2:1

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2F(Y/G) 2:1 1,6/0,8	1,6	0,8	0,32	150
H-2F(Y/G) 2:1 2,4/1,2	2,4	1,2	0,42	150
H-2F(Y/G) 2:1 3,2/1,6	3,2	1,6	0,42	150
H-2F(Y/G) 2:1 4,8/2,4	4,8	2,4	0,52	75
H-2F(Y/G) 2:1 6,4/3,2	6,4	3,2	0,54	75
H-2F(Y/G) 2:1 9,5/4,8	9,5	4,8	0,54	75
H-2F(Y/G) 2:1 12,7/6,4	12,7	6,4	0,62	50
H-2F(Y/G) 2:1 16,0/8,0	16,0	8,0	0,67	50
H-2F(Y/G) 2:1 19,0/9,5	19,0	9,5	0,75	30
H-2F(Y/G) 2:1 25,4/12,7	25,4	12,7	0,85	30
H-2F(Y/G) 2:1 32,0/16,0	32,0	16,0	0,85	30
H-2F(Y/G) 2:1 38,1/19,0	38,1	19,0	0,96	30
H-2F(Y/G) 2:1 50,8/25,4	50,8	25,4	0,96	30
H-2F(Y/G) 2:1 76,2/38,1	76,2	38,1	1,17	15
H-2F(Y/G) 2:1 102,0/50,8	102,0	50,8	1,30	15

For other types / sizes, please see the following page

## H-2(LS)

Thin-wall heat shrink tubing / flexible / flame retardant / 2:1 / low shrink temperature

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- Low shrink temperature

### Approvals:

- Flame propagation FMVSS 302
- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +65 °C
- Minimum full recovery temperature: +95 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-2(LS) 1,6/0,8	1,6	0,8	0,5	150
H-2(LS) 2,4/1,2	2,4	1,2	0,5	150
H-2(LS) 3,2/1,6	3,2	1,6	0,5	150
H-2(LS) 4,8/2,4	4,8	2,4	0,5	75
H-2(LS) 6,4/3,2	6,4	3,2	0,6	75
H-2(LS) 9,5/4,8	9,5	4,8	0,6	75
H-2(LS) 12,7/6,4	12,7	6,4	0,6	50
H-2(LS) 16,0/8,0	16,0	8,0	0,6	50
H-2(LS) 19,0/9,5	19,0	9,5	0,8	30
H-2(LS) 25,4/12,7	25,4	12,7	0,9	30
H-2(LS) 32,0/16,0	32,0	16,0	0,9	30
H-2(LS) 38,1/19,0	38,1	19,0	1,0	30
H-2(LS) 50,8/25,4	50,8	25,4	1,1	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## H-1

Thin-wall heat shrink tubing / non flame retardant / 2:1

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- 100% transparent
- Bright shiny-black

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +105 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +95 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Colors: shiny-black / transparent
- Also available in various lengths and in mini boxes



This type of heat shrink tubing is available with print (logo/text), except the color transparent. Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-1 1,2/0,6	1,2	0,6	0,33	150
H-1 1,6/0,8	1,6	0,8	0,36	150
H-1 2,4/1,2	2,4	1,2	0,44	150
H-1 3,2/1,6	3,2	1,6	0,44	150
H-1 4,8/2,4	4,8	2,4	0,56	75
H-1 6,4/3,2	6,4	3,2	0,56	75
H-1 9,5/4,8	9,5	4,8	0,56	75
H-1 12,7/6,4	12,7	6,4	0,65	50
H-1 16,0/8,0	16,0	8,0	0,69	50
H-1 19,0/9,5	19,0	9,5	0,80	30
H-1 25,4/12,7	25,4	12,7	0,90	30
H-1 32,0/16,0	32,0	16,0	0,90	30
H-1 38,1/19,0	38,1	19,0	1,00	30
H-1 50,8/25,4	50,8	25,4	1,00	30
H-1 76,2/38,1	76,2	38,1	1,20	15

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HBG

Thin-wall heat shrink tubing / flexible / 2:1 / for flexible gas pipes

### Features:

- Crosslinked Polyolefin
- Industry specific design
- Excellent shrinking properties
- Good mechanical performance

### Approvals:

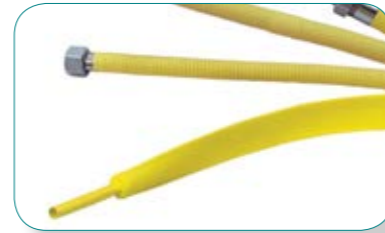
- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +80 °C
- Minimum full recovery temperature: +110 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: yellow



Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
HBG 23,0/9,5	23,0	9,5	0,65	100
HBG 27,5/12,7	27,5	12,7	0,70	100
HBG 29,0/12,7	29,0	12,7	0,70	50
HBG 33,5/16,0	33,5	16,0	0,80	50
HBG 40,5/19,0	40,5	19,0	0,80	50
HBG 50,8/25,4	50,8	25,4	0,80	50
HBG 65,0/32,5	65,0	32,5	1,27	50
HBG 76,2/38,1	77,0	38,1	1,27	50

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## Mini box type 1

Thin-wall heat shrink tubing / flexible / flame retardant / 2:1 / H-2(Z)

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- Flame retardant
- General purpose
- High flexibility

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- CSA file no.: 1934614
- Meets: RoHS, Sony-SS-00259

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Colors: black, red, blue, yellow, green, white, purple, brown



Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Box / Meter
H-2(Z) 1,2/0,6	1,2	0,6	0,33	10
H-2(Z) 1,6/0,8	1,6	0,8	0,36	10
H-2(Z) 2,4/1,2	2,4	1,2	0,44	10
H-2(Z) 3,2/1,6	3,2	1,6	0,44	10
H-2(Z) 4,8/2,4	4,8	2,4	0,51	10
H-2(Z) 6,4/3,2	6,4	3,2	0,56	5
H-2(Z) 9,5/4,8	9,5	4,8	0,56	5
H-2(Z) 12,7/6,4	12,7	6,4	0,65	5
H-2(Z) 16,0/8,0	16,0	8,0	0,69	5
H-2(Z) 19,0/9,5	19,0	9,5	0,80	5
H-2(Z) 25,4/12,7	25,4	12,7	0,90	5

## Mini box type 2

Thin-wall heat shrink tubing / flexible / flame retardant / 3:1 / H-2(3X)

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 3:1
- Flame retardant
- General purpose
- High flexibility

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- CSA file no.: 1934614
- Meets: RoHS, Sony-SS-00259

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



## H-5(3X)-F and H-5(4X)-F

Dual-wall heat shrink tubing / flexible / flame retardant / 3:1/4:1 / adhesive lined

### Features:

- Crosslinked co-extruded adhesive lined Polyolefin
- Shrink ratio: 3:1 and 4:1
- Flame retardant
- Excellent sealing and insulation properties
- UV resistant

### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/4

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +110 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black
- Other colors: red, blue, yellow, green, white (flame retardant class 2)
- Also available in various lengths and in mini boxes (please see page 69)



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Box / Meter
H-2(3X) 1,5/0,5	1,5	0,5	0,45	10
H-2(3X) 3,0/1,0	3,0	1,0	0,55	10
H-2(3X) 4,5/1,5	4,8	1,5	0,60	10
H-2(3X) 6,0/2,0	6,4	2,0	0,65	10
H-2(3X) 9,0/3,0	9,5	3,0	0,75	5
H-2(3X) 12,0/4,0	12,7	4,0	0,80	5
H-2(3X) 18,0/6,0	19,1	6,0	0,90	5
H-2(3X) 24,0/8,0	25,4	8,0	1,00	5

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter & Standard length in mm
H-5(3X)-F 3:1 3,0/1,0	3,0	1,0	1,00	150 meter
H-5(3X)-F 3:1 4,8/1,5	4,8	1,5	1,00	75 meter
H-5(3X)-F 3:1 6,0/2,0	6,0	2,0	1,00	75 meter
H-5(3X)-F 3:1 9,0/3,0	9,0	3,0	1,40	50 meter
H-5(3X)-F 3:1 12,0/4,0	12,0	4,0	1,60	30 meter
H-5(3X)-F 3:1 19,0/6,0	19,0	6,0	2,15	30 meter
H-5(3X)-F 3:1 24,0/8,0	24,0	8,0	2,40	30 meter
H-5(3X)-F 3:1 30,0/10,0	30,0	10,0	2,40	30 meter
H-5(3X)-F 3:1 40,0/13,0	40,0	13,0	2,40	30 meter
H-5(4X)-F 4:1 4,0/1,0	4,0	1,0	1,00	150 meter
H-5(4X)-F 4:1 6,0/1,5	6,0	1,5	1,00	75 meter
H-5(4X)-F 4:1 8,0/2,0	8,0	2,0	1,00	75 meter
H-5(4X)-F 4:1 12,0/3,0	12,0	3,0	1,40	50 meter
H-5(4X)-F 4:1 16,0/4,0	16,0	4,0	1,60	30 meter
H-5(4X)-F 4:1 24,0/6,0	24,0	6,0	2,15	30 meter
H-5(4X)-F 4:1 32,0/8,0	32,0	8,0	2,40	30 meter
H-5(4X)-F 4:1 52,0/13,0	52,0	13,0	2,40	1220 mm

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96



### HBK

Dual-wall heat shrink tubing / automotive / adhesive lined / 4:1

#### Features:

- Crosslinked adhesive lined Polyolefin
- Shrink ratio: 4:1
- High performance adhesive
- Designed for wire harnesses / splices
- Tubing for automotive industry
- Excellent mechanical performance

#### Approvals:

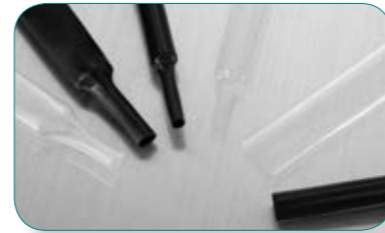
- Meets: RoHS

#### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +110 °C
- Minimum full recovery temperature: +135 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Colors: black, transparent



This type of heat shrink tubing is available with print (logo/text), except the color transparent. Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HBK 6,0/1,27	6,0	1,27	1,30	1220
HBK 8,0/1,65	8,0	1,65	1,52	1220
HBK 12,0/2,41	12,0	2,41	1,91	1220
HBK 18,0/4,45	18,0	4,45	2,41	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### Mini box type 3

Dual-wall heat shrink tubing / flexible / flame retardant / 3:1 / adhesive lined / H-5(3X)-F

#### Features:

- Crosslinked co-extruded adhesive lined Polyolefin
- Shrink ratio: 3:1
- Flame retardant
- Excellent sealing and insulation properties
- UV resistant

#### Approvals:

- UL224 125 °C VW-1 600 V file E204071
- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/4

#### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +110 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: black



Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Box / Meter
H-5(3X)-F 3:1 3,0/1,0	3,0	1,0	1,00	5,0
H-5(3X)-F 3:1 4,8/1,5	4,8	1,5	1,00	4,0
H-5(3X)-F 3:1 6,0/2,0	6,0	2,0	1,00	3,5
H-5(3X)-F 3:1 9,0/3,0	9,0	3,0	1,40	3,0
H-5(3X)-F 3:1 12,0/4,0	12,0	4,0	1,60	2,5
H-5(3X)-F 3:1 19,0/6,0	19,0	6,0	2,15	2,0
H-5(3X)-F 3:1 24,0/8,0	24,0	8,0	2,40	1,5

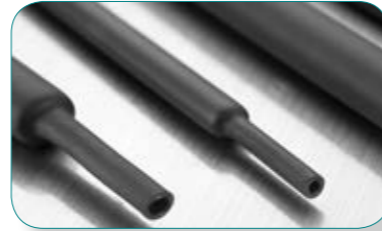
### H-175K Special heat shrink tubing / Kynar® / 175 degrees / 2:1

- Features:**
- Crosslinked PVDF
  - Shrink ratio: 2:1
  - Superior mechanical and abrasion resistance
  - Highly flame retardant
  - High temperature resistance
  - Excellent chemical and solvent resistance

- Approvals:**
- Meets: RoHS
  - Meets: SAE-AMS-DTL-23053/18

- Application:**
- Operating temperature: -55 °C to +175 °C
  - Minimum shrink temperature: +175 °C
  - Longitudinal change: 0 ± 10% max.

- Order information:**
- Color: transparent (black available on request)



This type of heat shrink tubing is available with print (logo/text), except the color transparent. Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter & Standard length in mm
H-175K 1,2/0,6	1,2	0,6	0,20	150 meter
H-175K 1,6/0,8	1,6	0,8	0,20	150 meter
H-175K 2,4/1,2	2,4	1,2	0,23	150 meter
H-175K 3,2/1,6	3,2	1,6	0,23	150 meter
H-175K 4,8/2,4	4,8	2,4	0,23	75 meter
H-175K 6,4/3,2	6,4	3,2	0,28	75 meter
H-175K 9,5/4,8	9,5	4,8	0,28	1220 mm
H-175K 12,7/6,4	12,7	6,4	0,28	1220 mm
H-175K 19,1/9,5	19,1	9,5	0,36	1220 mm
H-175K 25,4/12,7	25,4	12,7	0,41	1220 mm

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### H-200E and H-200E(TW) Special heat shrink tubing / Viton® / 200 degrees / 2:1

- Features:**
- H-200E = Fluoroelastomer tubing
  - H-200E(TW) = thin-wall Fluoroelastomer tubing
  - Crosslinked Fluoroelastomer
  - Shrink ratio: 2:1
  - Superior abrasion resistance
  - High temperature resistance
  - Excellent resistance to aggressive chemicals and solvents

- Approvals:**
- Meets: RoHS
  - Meets: SAE-AMS-DTL-23053/13

- Application:**
- Operating temperature: -55 °C to +200 °C
  - Minimum full recovery temperature: +175 °C
  - Longitudinal change: 0 ± 10% max.

- Order information:**
- Color: black
  - Available in various wall thicknesses



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
H-200E 3,2/1,6	3,2	1,6	0,76	50
H-200E 4,8/2,4	4,8	2,4	0,90	50
H-200E 6,4/3,2	6,4	3,2	0,90	50
H-200E 9,5/4,8	9,5	4,8	0,90	50
H-200E 12,7/6,4	12,7	6,4	1,10	30
H-200E 19,0/9,5	19,0	9,5	1,30	30
H-200E 25,4/12,7	25,4	12,7	1,65	30
H-200E(TW) 9,5/4,8	9,5	4,8	0,90	50
H-200E(TW) 12,7/6,4	12,7	6,4	0,90	30
H-200E(TW) 15,9/7,9	15,9	7,9	1,07	30
H-200E(TW) 19,1/9,5	19,0	9,5	1,07	30
H-200E(TW) 22,0/11,0	22,0	11,0	1,25	30
H-200E(TW) 25,4/12,7	25,4	12,7	1,25	30
H-200E(TW) 31,8/15,7	31,8	15,7	1,40	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### HTFE

Special heat shrink tubing / Teflon® / 260 degrees / 1,5:1

#### Features:

- Modified Tetrafluoroethylene
- Shrink ratio: 1,5:1
- Superior chemical and mechanical performance
- Very low friction coefficient
- Excellent electrical properties

#### Approvals:

- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/12

#### Application:

- Operating temperature: -65 °C to +260 °C
- Minimum full recovery temperature: +350 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: transparent



Pre-cut lengths are available on request.  
Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HTFE AWG 20	1,52	0,97	0,30	1220
HTFE AWG 18	1,93	1,17	0,30	1220
HTFE AWG 16	2,36	1,45	0,30	1220
HTFE AWG 14	3,05	1,82	0,30	1220
HTFE AWG 12	3,81	2,26	0,30	1220
HTFE AWG 10	4,85	2,80	0,30	1220
HTFE AWG 8	6,10	3,55	0,38	1220
HTFE AWG 6	7,67	4,40	0,38	1220
HTFE AWG 4	9,40	5,45	0,38	1220
HTFE AWG 2	10,92	6,90	0,38	1220
HTFE AWG 0	11,94	8,56	0,38	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### H-2(XT)

Special heat shrink tubing / insulation sleeve

#### Features:

- Crosslinked Polyolefin
- Non shrinkable
- Flame retardant

#### Approvals:

- Meets: RoHS
- UL224 125 °C VW-1 600 V file E204071

#### Application:

- Operating temperature: -55 °C to +125 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: black



Type / Size	As supplied: inside diameter in mm (min.)	Wall thickness in mm (min.)	Reel / Meter
H-2(XT) AWG 18	1,00	0,4	150
H-2(XT) AWG 16	1,30	0,4	150
H-2(XT) AWG 14	1,65	0,4	150
H-2(XT) AWG 12	2,10	0,4	150
H-2(XT) AWG 10	2,60	0,5	75
H-2(XT) AWG 8	3,30	0,5	75
H-2(XT) AWG 6	4,10	0,5	75
H-2(XT) AWG 4	5,20	0,5	50
H-2(XT) AWG 2	6,50	0,5	50
H-2(XT) AWG 0	8,30	0,5	30
H-2(XT) 3/8	9,50	0,5	30
H-2(XT) 7/16	11,10	0,5	30
H-2(XT) 1/2	12,70	0,5	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### HDR

Special heat shrink tubing / diesel-resistant / 2:1

#### Features:

- HDR = diesel resistant elastomeric tubing
- Crosslinked modified Fluoroelastomer
- Shrink ratio: 2:1
- Superior abrasion resistance
- High temperature resistance
- Excellent fluid resistance

#### Approvals:

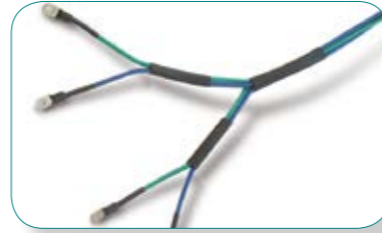
- Meets: RoHS
- Meets: SAE-AMS-DTL-23053/16

#### Application:

- Operating temperature: -65 °C to +150 °C
- Minimum full recovery temperature: +175 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter
HDR 3,2/1,6	3,2	1,6	0,76	50
HDR 4,8/2,4	4,8	2,4	0,85	50
HDR 6,4/3,2	6,4	3,2	0,90	50
HDR 9,5/4,8	9,5	4,8	1,02	50
HDR 12,7/6,4	12,7	6,4	1,22	30
HDR 19,0/9,5	19,0	9,5	1,45	30
HDR 25,4/12,7	25,4	12,7	1,80	30

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

### HFSP

Special heat shrink tubing / fiber optic splice protector

#### Features:

- Crosslinked Polyolefin
- Low shrink temperature
- Pre-installed stainless steel or ceramic rod
- Accomodate single or ribbon fibers

#### Approvals:

- Meets: RoHS

#### Application:

- Operating temperature: -45 °C to +100 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Wide range of sizes
- Color: transparent
- Other colors are available on request



Type / Size	Splice protector: length in mm	Fusion tube: inside diameter in mm (max.)	Steel rod: length in mm	Packing
HFSP-61	61,0	1,40	55,0	100 pcs per bag
HFSP-45	45,0	1,40	40,0	100 pcs per bag
HFSP-61T	61,0	1,40	57,0	100 pcs per bag
HFSP-45T	45,0	1,40	41,0	100 pcs per bag
HFSP-40T	40,0	1,40	36,0	100 pcs per bag
HFSP-30T	30,0	1,40	26,0	100 pcs per bag
HFSP-25T	25,0	1,40	21,0	100 pcs per bag
HFSP-40M	40,0	0,35	40,0	100 pcs per bag
HFSP-25M	25,0	0,35	25,0	100 pcs per bag

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96



## HRA2 and HR2

Medium-wall heat shrink tubing / with and without hot melt adhesive

**Features:**

- Medium-wall tubing with and without hot melt adhesive
- Good environmental protection
- Good electrical and mechanical performance
- Ideal for low voltage applications
- UV resistant

**Approvals:**

- Meets: RoHS

**Application:**

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

**Order information:**

- Also available in lengths of 1 and 1,5 meter
- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HRA2/HR2 8/2	8,0	2,0	1,6	1220
HRA2/HR2 12/3	12,0	3,0	2,0	1220
HRA2/HR2 16/5	16,0	5,0	2,2	1220
HRA2/HR2 22/6	22,0	6,0	2,4	1220
HRA2/HR2 28/6	28,0	6,0	2,5	1220
HRA2/HR2 33/8	33,0	8,0	2,5	1220
HRA2/HR2 40/12	40,0	12,0	2,5	1220
HRA2/HR2 55/16	55,0	16,0	2,7	1220
HRA2/HR2 65/19	65,0	19,0	2,9	1220
HRA2/HR2 75/22	75,0	22,0	3,0	1220
HRA2/HR2 85/25	85,0	25,0	3,0	1220
HRA2/HR2 95/25	95,0	25,0	3,0	1220
HRA2/HR2 115/34	115,0	34,0	3,2	1220
HRA2/HR2 140/42	140,0	42,0	3,3	1220
HRA2/HR2 160/50	160,0	50,0	3,3	1220
HRA2/HR2 180/58	180,0	58,0	3,3	1220
HRA2/HR2 205/65	205,0	65,0	3,3	1220
HRA2/HR2 235/65	235,0	65,0	3,7	1220
HRA2/HR2 265/75	265,0	75,0	3,8	1220
HRA2/HR2 300/75	300,0	75,0	3,8	1220
HRA2/HR2 350/100	350,0	100,0	4,2	1220
HRA2/HR2 380/150	380,0	150,0	4,2	1220
HRA2/HR2 410/150	410,0	150,0	4,2	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HRTM

Medium-wall heat shrink tubing / with hot melt adhesive (co-extrusion)

**Features:**

- Medium-wall tubing with hot melt adhesive
- Co-extrusion technology
- Good electrical and mechanical performance
- Ideal for low voltage applications
- UV resistant

**Approvals:**

- Meets: RoHS

**Application:**

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

**Order information:**

- Also available in lengths of 1 and 1,5 meter
- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HRTM 8/2	8,0	2,0	1,4	1220
HRTM 12/3	12,0	3,0	1,4	1220
HRTM 16/5	16,0	5,0	1,5	1220
HRTM 22/6	22,0	6,0	2,0	1220
HRTM 33/8	33,0	8,0	2,0	1220
HRTM 40/12	40,0	12,0	2,0	1220
HRTM 55/16	55,0	16,0	2,0	1220
HRTM 65/19	65,0	19,0	2,5	1220
HRTM 75/22	75,0	22,0	2,7	1220
HRTM 85/25	85,0	25,0	2,8	1220
HRTM 95/25	95,0	25,0	2,8	1220
HRTM 115/34	115,0	34,0	3,4	1220
HRTM 140/42	140,0	42,0	3,4	1220
HRTM 160/50	160,0	50,0	3,4	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HSTV

Medium-wall heat shrink tubing / with hot melt adhesive for CATV network

### Features:

- Medium-wall tubing with hot melt adhesive
- With thermo-chromatic stripes / paint
- Designed for CATV industry
- Easy to remove for repairs
- UV resistant

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HSTV 400	10,0	3,8	2,0	1220
HSTV 750	19,0	5,6	2,4	1220
HSTV 1100	28,0	9,0	2,4	1220
HSTV 1300	33,0	10,0	2,4	1220
HSTV 1500	38,1	12,0	2,4	1220
HSTV 1700	45,0	13,0	2,4	1220
HSTV 2050	55,0	19,0	2,4	1220
HSTV 2750	70,0	25,0	2,4	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HRS

Medium-wall heat shrink tubing / with mastic coating

### Features:

- Medium-wall tubing with mastic
- Excellent corrosion protection properties
- Excellent bonding to both metal and wood
- UV resistant

### Approvals:

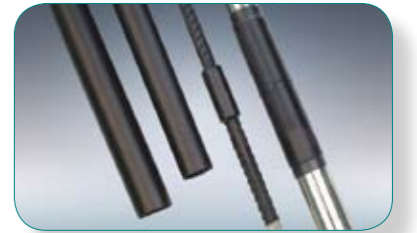
- Meets: RoHS

### Application:

- Operating temperature: -35 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Also available in lengths of 1 and 1,5 meter
- Color: black
- On request also available with 25% extra mastic



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HRS 33/8	33,0	8,0	2,5	1220
HRS 40/12	40,0	12,0	2,5	1220
HRS 55/16	55,0	16,0	2,7	1220
HRS 65/19	65,0	19,0	2,9	1220
HRS 75/22	75,0	22,0	3,0	1220
HRS 85/25	85,0	25,0	3,0	1220
HRS 95/25	95,0	25,0	3,0	1220
HRS 115/34	115,0	34,0	3,2	1220
HRS 140/42	140,0	42,0	3,3	1220
HRS 160/50	160,0	50,0	3,3	1220
HRS 180/58	180,0	58,0	3,3	1220
HRS 200/65	200,0	65,0	3,3	1220
HRS 235/65	235,0	65,0	3,7	1220
HRS 265/75	265,0	75,0	3,8	1220
HRS 300/85	300,0	85,0	3,8	1220
HRS 350/100	350,0	100,0	4,2	1220
HRS 410/150	410,0	150,0	4,2	1000

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HRA3 and HR3

Heavy-wall heat shrink tubing / with and without hot melt adhesive

### Features:

- Heavy-wall tubing with and without hot melt adhesive
- Superior electrical and environmental insulation
- Excellent abrasion and impact resistance
- Ideal for low voltage applications
- UV resistant

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Also available in lengths of 1 and 1,5 meter
- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HRA3/HR3 9/3	9,0	3,0	1,8	1220
HRA3/HR3 13/4	13,0	4,0	2,2	1220
HRA3/HR3 22/6	22,0	6,0	2,7	1220
HRA3/HR3 33/8	33,0	8,0	3,2	1220
HRA3/HR3 40/12	40,0	12,0	4,0	1220
HRA3/HR3 45/12	45,0	12,0	4,0	1220
HRA3/HR3 55/16	55,0	16,0	4,0	1220
HRA3/HR3 65/19	65,0	19,0	4,0	1220
HRA3/HR3 75/22	75,0	22,0	4,0	1220
HRA3/HR3 85/25	85,0	25,0	4,2	1220
HRA3/HR3 95/30	95,0	30,0	4,2	1220
HRA3/HR3 105/30	105,0	30,0	4,2	1220
HRA3/HR3 115/34	115,0	34,0	4,2	1220
HRA3/HR3 130/36	130,0	36,0	4,2	1220
HRA3/HR3 160/50	160,0	50,0	4,2	1220
HRA3/HR3 180/50	180,0	50,0	4,2	1220
HRA3/HR3 200/60	200,0	60,0	4,2	1220
HRA3/HR3 235/65	235,0	65,0	4,1	1220
HRA3/HR3 265/75	265,0	75,0	4,3	1220
HRA3/HR3 300/85	300,0	85,0	4,4	1220
HRA3/HR3 350/100	350,0	100,0	4,5	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HRTH

Heavy-wall heat shrink tubing / with hot melt adhesive (co-extrusion)

### Features:

- Heavy-wall tubing with hot melt adhesive
- Co-extrusion technology
- Excellent electrical and mechanical performance
- UV resistant

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Also available in lengths of 1 and 1,5 meter
- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HRTH 9/3	9,0	3,0	1,95	1220
HRTH 15/4	15,0	4,0	2,35	1220
HRTH 20/6	20,0	6,0	2,45	1220
HRTH 33/8	33,0	8,0	3,15	1220
HRTH 43/12	43,0	12,0	4,05	1220
HRTH 51/16	51,0	16,0	4,05	1220
HRTH 75/22	75,0	22,0	4,20	1220
HRTH 85/25	85,0	25,0	4,20	1220
HRTH 95/25	95,0	25,0	4,20	1220
HRTH 105/25	105,0	25,0	4,20	1220
HRTH 115/34	115,0	34,0	4,20	1220
HRTH 130/36	130,0	36,0	4,20	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HRA-6X

Heavy-wall heat shrink tubing / with hot melt adhesive and extra high shrink ratio

### Features:

- Heavy-wall tubing with hot melt adhesive
- Shrink ratio: 6:1
- Crosslinked Polyolefin
- Excellent sealing properties
- Extra heavy-wall
- UV resistant

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



This type of heat shrink tubing is available with print (logo/text). Pre-cut lengths are available on request. Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard length in mm
HRA-6X 19,0/3,2	19,0	3,2	3,2	1220
HRA-6X 33,0/5,5	33,0	5,5	3,4	1220
HRA-6X 44,4/7,4	44,4	7,4	3,6	1220
HRA-6X 50,8/8,3	50,8	8,3	4,7	1220
HRA-6X 69,8/11,7	69,8	11,7	4,7	1220
HRA-6X 88,9/17,1	88,9	17,1	4,7	1220
HRA-6X 119,4/22,9	119,4	22,9	4,7	1220
HRA-6X 235,0/40,0	235,0	40,0	4,7	1220

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HRSL

Heavy-wall heat shrink tubing / heat shrinkable cable repair sleeve with glue

### Features:

- Heat shrinkable wrap around sleeve
- Good environmental protection
- Good electrical and mechanical performance
- Ideal for low voltage applications
- UV and weather resistant

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -40 °C to +65 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



This type of heat shrink tubing is available with print (logo/text). Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Standard lengths in mm
HRSL 36/10	38,0	9,0	2,4	500, 750, 1000, 1500
HRSL 55/13	57,0	13,0	2,5	500, 750, 1000, 1500
HRSL 85/20	85,0	20,0	3,0	500, 750, 1000, 1500
HRSL 108/27	110,0	27,0	3,0	500, 750, 1000, 1500
HRSL 136/30	138,0	30,0	3,2	500, 750, 1000, 1500
HRSL 180/50	183,0	50,0	3,2	500, 750, 1000, 1500

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96



## HBM Halogen free busbar insulation tubing

- Features:**
- Medium-wall halogen free busbar insulation tubing
  - Crosslinked Polyolefin
  - Excellent electrical properties and creeping resistance
  - UV resistant
  - Up to 36 kV

- Approvals:**
- Meets: RoHS

- Application:**
- Minimum full recovery temperature: +110 °C
  - Longitudinal change: 0 ± 10% max.

- Order information:**
- Color: red



This type of heat shrink tubing is available with print (logo/text). Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter & Standard length in mm
HBM 19/6	19,0	6,0	1,9	30 meter
HBM 25/10	25,0	10,0	1,9	30 meter
HBM 30/12	30,0	12,0	1,9	30 meter
HBM 35/14	35,0	14,0	1,9	30 meter
HBM 40/16	40,0	16,0	1,9	30 meter
HBM 50/20	50,0	20,0	1,9	30 meter
HBM 65/25	65,0	25,0	1,9	30 meter
HBM 75/30	75,0	30,0	1,9	15 meter
HBM 100/40	100,0	40,0	1,9	15 meter
HBM 120/50	120,0	50,0	2,9	1000 mm
HBM 150/60	150,0	60,0	2,9	1000 mm
HBM 180/60	180,0	60,0	2,9	1000 mm
HBM 205/75	205,0	75,0	2,9	1000 mm

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HBTM and HBTH Halogen free flexible busbar insulation tubing

- Features:**
- HBTM = medium-wall tubing
  - HBTH = heavy-wall tubing
  - Medium- and heavy-wall flexible busbar insulation tubing
  - Modified Polyolefin
  - Excellent electrical properties and creeping resistance
  - Halogen free
  - UV and weather resistant
  - Up to 36 kV

- Approvals:**
- Meets: RoHS

- Application:**
- Minimum full recovery temperature: +120 °C
  - Longitudinal change: 0 ± 10% max.

- Order information:**
- Color: red



This type of heat shrink tubing is available with print (logo/text). Contact us for the possibilities.

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Reel / Meter & Standard length in mm
HBTM 15/6	15,0	6,0	2,5	30 meter
HBTM 25/10	25,0	10,0	2,9	30 meter
HBTM 30/12	30,0	12,0	2,9	30 meter
HBTM 40/16	40,0	16,0	2,9	30 meter
HBTM 50/20	50,0	20,0	2,9	15 meter
HBTM 65/25	65,0	25,0	2,9	15 meter
HBTM 75/30	75,0	30,0	2,9	15 meter
HBTM 100/40	100,0	40,0	2,9	15 meter
HBTM 120/50	120,0	50,0	2,9	15 meter
HBTH 25/10	25,0	10,0	4,0	1220 mm
HBTH 40/16	40,0	16,0	4,0	1220 mm
HBTH 50/20	50,0	20,0	4,0	1220 mm
HBTH 75/25	75,0	25,0	4,0	1220 mm
HBTH 95/30	95,0	30,0	4,0	1220 mm
HBTH 120/40	120,0	40,0	4,1	1220 mm
HBTH 180/58	180,0	58,0	4,1	1220 mm

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HSEC and HCEC

Moulded parts / cable end caps with spiral adhesive coating

### Features:

- HSEC = standard end cap
- HSEC-L = standard end cap, extended length
- HCEC = conductive end cap
- Crosslinked Polyolefin
- Excellent sealing properties
- Ideal for low voltage applications
- UV and weather resistant

### Approvals:

- Meets: RoHS

### Application:

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +120 °C
- Longitudinal change: 0 ± 10% max.

### Order information:

- Color: black



This moulded part is available with print (logo/text). Contact us for the possibilities.

### Type HSEC

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	After recovery: length in mm
HSEC 105	12,0	4,0	2,6	40,0
HSEC 110	14,0	5,0	2,2	45,0
HSEC 115	20,0	6,0	2,8	55,0
HSEC 120	25,0	8,5	2,8	68,0
HSEC 130	35,0	16,0	3,3	90,0
HSEC 135	40,0	16,0	3,3	83,0
HSEC 140	55,0	26,0	3,5	103,0
HSEC 150	75,0	36,0	4,0	120,0
HSEC 160	100,0	52,0	4,0	140,0
HSEC 170	120,0	60,0	4,0	150,0
HSEC 180	145,0	60,0	4,0	150,0
HSEC 190	160,0	80,0	4,0	150,0
HSEC 110L	14,0	5,0	2,2	55,0
HSEC 130L	40,0	15,0	3,3	90,0
HSEC 140L	55,0	23,0	3,8	140,0
HSEC 145L	62,0	23,0	3,8	140,0
HSEC 150L	75,0	36,0	4,0	150,0
HSEC 150XL	75,0	36,0	4,2	170,0
HSEC 160L	100,0	47,0	4,0	155,0

For other types / sizes, please see the following page

### Type HCEC

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	After recovery: length in mm
HCEC 120	25,0	8,5	2,8	68,0
HCEC 130	42,0	15,0	3,3	110,0
HCEC 140	55,0	23,0	3,8	140,0
HCEC 145	62,0	23,0	3,8	140,0
HCEC 150	75,0	32,0	4,0	150,0
HCEC 150L	75,0	36,0	4,2	170,0
HCEC 160	105,0	45,0	4,0	150,0

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HLB

### Moulded parts / low voltage cable breakouts 2 - 5 cores

#### Features:

- HLB2 = low voltage cable breakout 2 - cores
- HLB3 = low voltage cable breakout 3 - cores
- HLB3..L = low voltage cable breakout 3 - cores (extended length)
- HLB4 = low voltage cable breakout 4 - cores
- HLB5 = low voltage cable breakout 5 - cores
- Crosslinked Polyolefin
- Available for 2 - 5 cores
- Excellent sealing properties
- Ideal for low voltage applications
- UV resistant

#### Approvals:

- Meets: RoHS

#### Application:

- Operating temperature: -55 °C to +110 °C
- Minimum shrink temperature: +110 °C
- Minimum full recovery temperature: +130 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: black



This moulded part is available with print (logo/text). Contact us for the possibilities.

Type / Size	As supplied: inside diameter large in mm (min.)	As supplied: inside diameter small in mm (min.)	After recovery: inside diameter large in mm (max.)	After recovery: inside diameter small in mm (min.)	After recovery: wall thickness in mm (min.)	After recovery: length in mm
HLB 205	22,0	9,0	8,0	3,5	2,2	55,0
HLB 210	30,0	14,0	12,0	4,5	2,6	93,0
HLB 215	40,0	15,0	16,0	5,0	2,1	125,0
HLB 220	60,0	25,0	23,0	7,5	2,6	118,0
HLB 220L	60,0	25,0	23,0	7,5	2,6	155,0
HLB 230	100,0	30,0	42,0	9,0	3,1	155,0
HLB 240	150,0	20,0	75,0	6,0	3,8	170,0
HLB 310	38,0	14,0	17,0	4,5	2,7	98,0
HLB 320	60,0	25,0	25,0	8,0	3,0	165,0
HLB 330	80,0	35,0	38,0	11,0	3,5	185,0
HLB 340	110,0	46,0	50,0	17,5	4,0	250,0
HLB 350	125,0	55,0	57,0	20,0	4,0	260,0
HLB 360	140,0	62,0	70,0	26,0	4,0	280,0
HLB 370	170,0	75,0	77,0	28,0	4,0	280,0
HLB 310L	40,0	15,0	16,0	4,5	2,1	125,0
HLB 320L	60,0	25,0	24,0	8,0	3,2	180,0
HLB 330L	80,0	35,0	38,0	11,0	4,0	215,0

For other types / sizes, please see the following page

Type / Size	As supplied: inside diameter large in mm (min.)	As supplied: inside diameter small in mm (min.)	After recovery: inside diameter large in mm (max.)	After recovery: inside diameter small in mm (min.)	After recovery: wall thickness in mm (min.)	After recovery: length in mm
HLB 410	42,0	14,0	15,0	3,5	2,2	105,0
HLB 420	55,0	20,0	21,0	5,0	3,1	150,0
HLB 425	65,0	26,0	26,0	7,0	3,3	175,0
HLB 430	75,0	28,0	26,0	7,0	3,3	175,0
HLB 440	82,0	30,0	37,0	9,0	4,0	190,0
HLB 445	90,0	32,0	37,0	9,0	4,0	190,0
HLB 450	102,0	38,0	47,0	12,0	4,0	198,0
HLB 460	130,0	52,0	52,0	15,0	4,0	240,0
HLB 470	160,0	64,0	70,0	19,0	4,0	260,0
HLB 510	40,0	13,0	19,0	4,0	2,5	98,0
HLB 520	55,0	18,0	24,0	5,0	3,2	155,0
HLB 530	80,0	26,0	33,0	8,0	3,0	175,0
HLB 540	100,0	34,0	42,0	10,0	3,0	190,0

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HCB

### Moulded parts / 3 - core conductive cable breakouts

**Features:**

- Crosslinked Polyolefin
- Conductive
- Red non tracking mastic applied
- UV resistant

**Approvals:**

- Meets: RoHS

**Application:**

- Operating temperature: -55 °C to +105 °C
- Minimum shrink temperature: +110 °C
- Minimum full recovery temperature: +130 °C
- Longitudinal change: 0 ± 10% max.

**Order information:**

- Color: black



This moulded part is available with print (logo/text). Contact us for the possibilities.

Type / Size	As supplied: inside diameter large in mm (min.)	As supplied: inside diameter small in mm (min.)	After recovery: inside diameter large in mm (max.)	After recovery: inside diameter small in mm (min.)	After recovery: wall thickness in mm (min.)	After recovery: length in mm
HCBS20	60,0	25,0	24,0	8,0	3,0	183,0
HCBS30	80,0	35,0	38,0	11,0	4,0	215,0
HCBS40	110,0	46,0	50,0	17,5	4,0	250,0
HCBS50	125,0	55,0	57,0	20,0	4,0	260,0
HCBS60	140,0	62,0	70,0	26,0	4,0	280,0

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96

## HCFT

### Moulded parts / cable feed throughs

**Features:**

- Crosslinked Polyolefin adhesive lined
- Excellent sealing properties
- Ideal for low voltage applications
- UV and weather resistant

**Approvals:**

- Meets: RoHS

**Application:**

- Operating temperature: -55 °C to +110 °C
- Minimum full recovery temperature: +110 °C
- Longitudinal change: 0 ± 10% max.

**Order information:**

- Color: black



This moulded part is available with print (logo/text). Contact us for the possibilities.

Type / Size	As supplied: inside diameter large in mm (min.)	As supplied: inside diameter small in mm (min.)	After recovery: inside diameter large in mm (max.)	After recovery: inside diameter small in mm (min.)	After recovery: wall thickness in mm (min.)	After recovery: length in mm
HCFT 110	85,0	15,0	42,0	5,0	2,5	130,0
HCFT 120	60,0	45,0	30,0	10,0	2,5	130,0
HCFT 130	100,0	20,0	52,0	8,0	3,0	150,0
HCFT 135	150,0	14,0	92,0	5,0	3,5	150,0
HCFT 140	160,0	60,0	92,0	20,0	3,2	150,0
HCFT 150	160,0	100,0	92,0	45,0	3,5	150,0

For selecting the right type of heat shrink tubing (selection table), please see page 94  
For cross references, please see page 96



## Assortments heat shrink tubing

### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- Flame retardant
- General purpose
- High flexibility

### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

### Content assortment 1: 127 pcs H-2(Z) heat shrink tubing (mixed colors)

Type / Size	Length in mm	Quantity
H-2(Z) 1,6/0,8	35,0	30
H-2(Z) 2,4/1,2	35,0	25
H-2(Z) 3,2/1,6	35,0	20
H-2(Z) 4,8/2,4	35,0	20
H-2(Z) 6,4/3,2	70,0	16
H-2(Z) 9,5/4,8	70,0	8
H-2(Z) 12,7/6,4	80,0	8



### Content assortment 2: 127 pcs H-2(Z) heat shrink tubing (black)

Type / Size	Length in mm	Quantity
H-2(Z) 1,6/0,8	35,0	30
H-2(Z) 2,4/1,2	35,0	25
H-2(Z) 3,2/1,6	35,0	20
H-2(Z) 4,8/2,4	35,0	20
H-2(Z) 6,4/3,2	70,0	16
H-2(Z) 9,5/4,8	70,0	8
H-2(Z) 12,7/6,4	80,0	8



### Content assortment 3: 465 pcs H-2(Z) heat shrink tubing (black)

Type / Size	Length in mm	Quantity
H-2(Z) 2,4/1,2	35,0	120
H-2(Z) 3,2/1,6	35,0	100
H-2(Z) 4,8/2,4	35,0	80
H-2(Z) 6,4/3,2	35,0	60
H-2(Z) 9,5/4,8	70,0	65
H-2(Z) 12,7/6,4	70,0	15
H-2(Z) 16,0/8,0	100,0	15
H-2(Z) 19,0/9,5	70,0	5
H-2(Z) 25,4/12,7	70,0	5



## Assortment heat shrink tubing in display

WKK offers a practical metal display which contains a wide range of thin- and dual-wall heat shrink tubing. The heat shrink tubing has a standard length of 1220 mm, is packed per type / size in a display box and can easily be taken out to be sold per piece or in small quantities. All bars will be delivered in black. Other colors can be delivered on request.



### Specifications types of heat shrink tubing

#### H-2(Z):

Thin-wall heat shrink tubing / flexible / flame retardant / 2:1

#### Features:

- Crosslinked Polyolefin
- Shrink ratio: 2:1
- Flame retardant
- General purpose
- High flexibility

#### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +100 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: black
- Other colors are available on request: red, blue, yellow, green, white
- In lengths of 1220 mm

#### H-5(3X)-F:

Dual-wall heat shrink tubing / flexible / flame retardant / 3:1 / adhesive lined

#### Features:

- Crosslinked co-extruded adhesive lined Polyolefin
- Shrink ratio: 3:1
- Flame retardant
- Excellent sealing and insulation properties
- UV-resistant

#### Application:

- Operating temperature: -55 °C to +125 °C
- Minimum shrink temperature: +70 °C
- Minimum full recovery temperature: +110 °C
- Longitudinal change: 0 ± 10% max.

#### Order information:

- Color: black
- In lengths of 1220 mm

### Content display

Type / Size	As supplied: inside diameter in mm (min.)	After recovery: inside diameter in mm (max.)	After recovery: wall thickness in mm (min.)	Number of pieces in display
H-2(Z) 2:1 2,4/1,2	2,4	1,2	0,44	50
H-2(Z) 2:1 3,2/1,6	3,2	1,6	0,44	50
H-2(Z) 2:1 4,8/2,4	4,8	2,4	0,51	25
H-2(Z) 2:1 6,4/3,2	6,4	3,2	0,56	25
H-2(Z) 2:1 9,5/4,8	9,5	4,8	0,56	10
H-2(Z) 2:1 12,7/6,4	12,7	6,4	0,65	10
H-5(3X)-F 3:1 3,0/1,0	3,0	1,0	1,00	50
H-5(3X)-F 3:1 4,8/1,5	4,8	1,5	1,00	25
H-5(3X)-F 3:1 6,0/2,0	6,0	2,0	1,00	25
H-5(3X)-F 3:1 9,0/3,0	9,0	3,0	1,40	10
H-5(3X)-F 3:1 12,0/4,0	12,0	4,0	1,60	10
H-5(3X)-F 3:1 19,0/6,0	19,0	6,0	2,15	5

## Selection table heat shrink tubing

Product type	Product name	Shrink ratio	Operating temperature and Potential rating	Flame retardant	UL	Mil spec	UV resistant	Halogen free
Thin-wall heat shrink tubing	H-2(Z)	2:1	-55 °C to +125 °C, 600 V	VW-1	Yes			
	H-2(3X)	3:1	-55 °C to +125 °C, 600 V	VW-1	Yes			
	H-2F	2:1	-55 °C to +135 °C, 600 V	VW-1 (except transparent)	Yes	Yes		
	H-2F(3X)	3:1	-55 °C to +135 °C, 600 V	VW-1 (except transparent)	Yes	Yes		
	H-2F(4X)	4:1	-55 °C to +135 °C, 600 V	VW-1	Yes	Yes		
	H-2(HF)	2:1	-55 °C to +125 °C, 600 V	VW-1	Yes			Yes
	H-2F(Y/G)	2:1 & 3:1	-55 °C to +135 °C, 600 V	VW-1	Yes	Yes		
	H-2(LS)	2:1	-55 °C to +125 °C, 600 V	FMVSS 302				
	H-1	2:1	-55 °C to +105 °C, 600 V					
HBG	2:1	-55 °C to +125 °C, 600 V						
Dual-wall heat shrink tubing	H-5(3X)-F	3:1	-55 °C to +125 °C, 600 V	VW-1	Yes	Yes	Yes	
	H-5(4X)-F	4:1	-55 °C to +125 °C, 600 V	VW-1	Yes	Yes	Yes	
	HBK	4:1	-55 °C to +125 °C, 600 V	Self-extinguish in 30 seconds			Yes	
Special heat shrink tubing	H-175K	2:1	-55 °C to +175 °C, 600 V	VW-1		Yes		
	H-200E	2:1	-55 °C to +200 °C, 600 V	VW-1		Yes		
	H-200E(TW)	2:1	-55 °C to +200 °C, 600 V	VW-1		Yes		
	HTFE	1,5:1	-65 °C to +260 °C, 600 V	Self-extinguish in 30 seconds		Yes		
	H-2(XT)		-55 °C to +125 °C, 600 V	Self-extinguish in 30 seconds				
	HDR	2:1	-65 °C to +150 °C, 600 V	Self-extinguish in 30 seconds		Yes		
	HFSP	2:1	-45 °C to +100 °C, 600 V					Yes

## Selection table heat shrink tubing

Product type	Product name	Shrink ratio	Operating temperature and Potential rating	Flame retardant	UL	Mil spec	UV resistant	Halogen free
Medium-wall heat shrink tubing	HRA2	3:1	-55 °C to +110 °C				Yes	Yes
	HR2	3:1	-55 °C to +110 °C				Yes	Yes
	HRTM	3:1	-55 °C to +110 °C				Yes	Yes
	HSTV	3:1	-55 °C to +110 °C				Yes	Yes
	HRS	3:1	-35 °C to +110 °C				Yes	Yes
Heavy-wall heat shrink tubing	HRA3	3:1	-55 °C to +110 °C				Yes	Yes
	HR3	3:1	-55 °C to +110 °C				Yes	Yes
	HRTH	3:1	-55 °C to +110 °C				Yes	Yes
	HRA-6X	6:1	-55 °C to +110 °C				Yes	Yes
Busbar insulation tubing	HBM	2,5:1	-55 °C to +105 °C, up to 36 kV	ISO 4589			Yes	Yes
	HBTM	2,5:1	-55 °C to +105 °C, up to 36 kV	ISO 4589			Yes	Yes
	HBTH	2,5:1	-55 °C to +105 °C, up to 36 kV	ISO 4589			Yes	Yes
Moulded parts	HSEC		-55 °C to +110 °C				Yes	Yes
	HCEC		-55 °C to +110 °C				Yes	Yes
	HLB		-55 °C to +110 °C				Yes	Yes
	HCB		-55 °C to +105 °C				Yes	Yes
	HCFT		-55 °C to +110 °C				Yes	Yes

## Cross references heat shrink tubing

Type	Hongshang	Raychem	DSG-Canusa	HellermannTyton
Thin-wall heat shrink tubing	H-2(Z)	BRST	Deray-H	TCN 20
	H-2(3X)			TCN 20
	H-2F	CGPT / RNF / Versafit	Deray-I	TF21
	H-2F(3X)	RNF-3000	Deray-I 3000	TF31
	H-2F(4X)			
	H-2(HF)		CZT 200	TF24
	H-2F(Y/G)	DCPT	Deray-IGY	TREDUX
	H-2(LS)	LSTT	Deray-LSB	
	H-1	CGPE-105	Deray-H	
	HBG			
Dual-wall heat shrink tubing	H-5(3X)-F	ATUM	Deray-IAKT	TA32
	H-5(4X)-F		Deray-IAKT	TA42
	HBK		CBK	
Special heat shrink tubing	H-175K	RW-175	Deray-KY175	
	H-200E	RW-200	Deray-VT220	
	H-200E(TW)	RW-200E		
	HTFE		Deray-PTFE	
	H-2(XT)	NETM		HS sleeve
	HDR		Deray-V25	
	HFSP		CFSP	

The cross references mentioned above are an indication. Technical characteristics can differ from each other.

## Cross references heat shrink tubing

Type	Hongshang	Raychem	DSG-Canusa	HellermannTyton
Medium-wall heat shrink tubing	HRA2	MWTM / RMW	CFM	MA47
	HR2		CFM	MU47
	HRTM	MWTM / RMW		TREDUX MA47
	HSTV	TCS / SCTV	CFTV	
	HRS			
Heavy-wall heat shrink tubing	HRA3	WCSM / RHW	CFW	HA47
	HR3		CFW	HU47
	HRTH	WCSM / RHW		TREDUX HA47
	HRA-6X	HRHT	CFHR	HA67
Busbar insulation tubing	HBM			
	HBTM	BPRM	CBTM	
	HBTH	BBIT	CBTH	
Moulded parts	HSEC		CCAP / CEC	Helashrink 1600
	HCEC			
	HLB		CCB	
	HCB			
	HCFT			

The cross references mentioned above are an indication. Technical characteristics can differ from each other.

### WKK: distributor of Jacob cable glands and accessories

The main purpose of cable glands is to ensure a safe cable entry. Therefore WKK offers cable glands and accessories of the company Jacob, one of the largest cable gland specialists in the world. Our standard range of cable glands and accessories include: Polyamide / brass / stainless steel / EMC and Ex cable glands, locknuts, screw plugs, enlargers, adapters, reductions and many other articles. Of course, all these articles are available in different sizes (metric and PG) and colours. In addition to our standard range of cable glands and accessories, we also supply all other Jacob products. For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)




## CABLE GLANDS & ACCESSORIES



## Polyamide PA6 V-2 Jacob cable glands, metric

Material : Polyamide PA6 V-2  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 – 5 bar  
 Test standard : EN 62444 / UL 514B  
 UL / CSA-File : E140310  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)  
 Miscellaneous : Also available in thread lengths of 15,0 and 18,0 mm  
 : From M32 available with sealing ring



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 PA6 V-2 cable gland	M12 x 1,5	3,0 - 6,5	8,0	100
M16 PA6 V-2 cable gland	M16 x 1,5	5,0 - 10,0	8,0	100
M20 PA6 V-2 cable gland	M20 x 1,5	8,0 - 13,0	8,0	100
M25 PA6 V-2 cable gland	M25 x 1,5	11,0 - 17,0	8,0	50
M32 PA6 V-2 cable gland	M32 x 1,5	15,0 - 21,0	10,0	25
M40 PA6 V-2 cable gland	M40 x 1,5	19,0 - 28,0	10,0	10
M50 PA6 V-2 cable gland	M50 x 1,5	27,0 - 35,0	12,0	5
M63 PA6 V-2 cable gland	M63 x 1,5	32,0 - 42,0	12,0	5

## Polyamide PA6 V-2 Jacob cable glands, PG

Material : Polyamide PA6 V-2  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 – 5 bar  
 Test standard : UL 514B  
 UL / CSA-File : E140310  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)  
 Miscellaneous : Also available in thread lengths of 15,0 and 18,0 mm  
 : From PG29 available with O-ring



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
PG7 PA6 V-2 cable gland	PG7	3,0 - 6,5	8,0	100
PG9 PA6 V-2 cable gland	PG9	4,0 - 8,0	8,0	100
PG11 PA6 V-2 cable gland	PG11	5,0 - 10,0	8,0	100
PG13,5 PA6 V-2 cable gland	PG13,5	6,0 - 12,0	9,0	100
PG16 PA6 V-2 cable gland	PG16	10,0 - 14,0	10,0	50
PG21 PA6 V-2 cable gland	PG21	13,0 - 18,0	11,0	50
PG29 PA6 V-2 cable gland	PG29	18,0 - 25,0	11,0	25
PG36 PA6 V-2 cable gland	PG36	22,0 - 32,0	13,0	10
PG42 PA6 V-2 cable gland	PG42	30,0 - 38,0	13,0	5
PG48 PA6 V-2 cable gland	PG48	34,0 - 44,0	14,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob hexagonal locknuts, metric

Material : Polyamide PA6 GF30  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -40 °C up to +100 °C  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread	Height (mm)	Packing (pcs)
M12 PA6 GF30 locknut	M12 x 1,5	5,0	100
M16 PA6 GF30 locknut	M16 x 1,5	5,0	100
M20 PA6 GF30 locknut	M20 x 1,5	6,0	100
M25 PA6 GF30 locknut	M25 x 1,5	6,0	100
M32 PA6 GF30 locknut	M32 x 1,5	7,0	100
M40 PA6 GF30 locknut	M40 x 1,5	7,0	50
M50 PA6 GF30 locknut	M50 x 1,5	8,0	50
M63 PA6 GF30 locknut	M63 x 1,5	8,0	50

## Polyamide PA6 GF30 Jacob hexagonal locknuts, PG

Material : Polyamide PA6 GF30  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -20 °C up to +100 °C  
 Standard colors : Light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread	Height (mm)	Packing (pcs)
PG7 PA6 GF30 locknut	PG7	5,0	100
PG9 PA6 GF30 locknut	PG9	5,0	100
PG11 PA6 GF30 locknut	PG11	5,0	100
PG13,5 PA6 GF30 locknut	PG13,5	6,0	100
PG16 PA6 GF30 locknut	PG16	6,0	100
PG21 PA6 GF30 locknut	PG21	7,0	100
PG29 PA6 GF30 locknut	PG29	7,0	100
PG36 PA6 GF30 locknut	PG36	8,0	50
PG42 PA6 GF30 locknut	PG42	8,0	50
PG48 PA6 GF30 locknut	PG48	8,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob screw plugs, metric

Material : Polyamide PA6 GF30  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -40 °C up to +100 °C  
 Protection grade : IP54  
 : IP66 / IP68 possible when using an additionally  
 : mounted sealing ring  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
M12 PA6 GF30 screw plug	M12 x 1,5	15,0	6,0	10,0	100
M16 PA6 GF30 screw plug	M16 x 1,5	20,0	6,0	10,5	100
M20 PA6 GF30 screw plug	M20 x 1,5	24,0	6,0	10,5	100
M25 PA6 GF30 screw plug	M25 x 1,5	30,0	8,0	13,0	100
M32 PA6 GF30 screw plug	M32 x 1,5	37,0	8,0	13,5	100
M40 PA6 GF30 screw plug	M40 x 1,5	46,0	8,0	14,0	50
M50 PA6 GF30 screw plug	M50 x 1,5	56,0	10,0	16,5	50
M63 PA6 GF30 screw plug	M63 x 1,5	70,0	12,0	17,0	50

## Polyamide PA6 V-2 Jacob screw plugs, metric

Material : Polyamide PA6 V-2  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : IP65, Type 4X  
 Test standard : UL 514A / UL 50 / UL 746C  
 UL / CSA-File : E140310  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
M12 PA6 V-2 screw plug	M12 x 1,5	15,0	6,0	10,0	100
M16 PA6 V-2 screw plug	M16 x 1,5	20,0	6,0	10,5	100
M20 PA6 V-2 screw plug	M20 x 1,5	24,0	6,0	10,5	100
M25 PA6 V-2 screw plug	M25 x 1,5	30,0	8,0	13,0	100
M32 PA6 V-2 screw plug	M32 x 1,5	37,0	8,0	13,5	100
M40 PA6 V-2 screw plug	M40 x 1,5	46,0	8,0	14,0	50
M50 PA6 V-2 screw plug	M50 x 1,5	56,0	10,0	16,5	50
M63 PA6 V-2 screw plug	M63 x 1,5	70,0	12,0	17,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob screw plugs, PG

Material : Polyamide PA6 GF30  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : IP54  
 Standard color : Light grey (RAL 7035)



Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
PG7 PA6 GF30 screw plug	PG7	15,0	6,0	10,0	100
PG9 PA6 GF30 screw plug	PG9	19,0	6,0	10,0	100
PG11 PA6 GF30 screw plug	PG11	22,0	6,0	10,0	100
PG13,5 PA6 GF30 screw plug	PG13,5	25,0	6,0	10,0	100
PG16 PA6 GF30 screw plug	PG16	27,0	6,0	10,0	100
PG21 PA6 GF30 screw plug	PG21	33,0	8,0	12,5	100
PG29 PA6 GF30 screw plug	PG29	44,5	8,0	13,0	100
PG36 PA6 GF30 screw plug	PG36	55,5	10,0	15,0	50
PG42 PA6 GF30 screw plug	PG42	62,5	10,0	15,5	50
PG48 PA6 GF30 screw plug	PG48	69,5	12,0	17,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob enlargers, metric

Material : Polyamide PA6 GF30  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : Dependent on the combination with other components  
 Standard colors : Light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M12-M16 PA6 GF30 enlarger	M12 x 1,5 - M16 x 1,5	8,0	20,5	100
M16-M20 PA6 GF30 enlarger	M16 x 1,5 - M20 x 1,5	8,0	20,5	100
M20-M25 PA6 GF30 enlarger	M20 x 1,5 - M25 x 1,5	8,0	21,0	100
M25-M32 PA6 GF30 enlarger	M25 x 1,5 - M32 x 1,5	8,0	37,0	50
M32-M40 PA6 GF30 enlarger	M32 x 1,5 - M40 x 1,5	10,0	25,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob enlargers, PG

Material : Polyamide PA6 GF30  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : Dependent on the combination with other components  
 Standard color : Light grey (RAL 7035)



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG7-PG9 PA6 GF30 enlarger	PG7 - PG9	8,0	21,0	100
PG9-PG11 PA6 GF30 enlarger	PG9 - PG11	8,0	23,0	100
PG11-PG13,5 PA6 GF30 enlarger	PG11 - PG13,5	8,0	23,0	100
PG11-PG16 PA6 GF30 enlarger	PG11 - PG16	8,0	24,5	100
PG13,5-PG16 PA6 GF30 enlarger	PG13,5 - PG16	9,0	26,0	100
PG16-PG21 PA6 GF30 enlarger	PG16 - PG21	9,0	29,0	100
PG21-PG29 PA6 GF30 enlarger	PG21 - PG29	10,0	32,0	50
PG29-PG36 PA6 GF30 enlarger	PG29 - PG36	11,0	35,5	25
PG36-PG42 PA6 GF30 enlarger	PG36 - PG42	13,0	40,5	10
PG42-PG48 PA6 GF30 enlarger	PG42 - PG48	13,0	41,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob adapters, metric to PG

Material : Polyamide PA6 GF30  
 External thread : Metric (EN 60423)  
 Internal thread : PG (DIN 40430)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : Dependent on the combination with other components  
 Standard color : Light grey (RAL 7035)



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M12-PG7 PA6 GF30 adapter	M12 x 1,5 - PG7	8,0	21,0	100
M12-PG9 PA6 GF30 adapter	M12 x 1,5 - PG9	11,0	23,5	100
M16-PG9 PA6 GF30 adapter	M16 x 1,5 - PG9	11,0	24,5	100
M20-PG11 PA6 GF30 adapter	M20 x 1,5 - PG11	11,0	26,5	100
M20-PG13,5 PA6 GF30 adapter	M20 x 1,5 - PG13,5	11,0	26,0	100
M20-PG16 PA6 GF30 adapter	M20 x 1,5 - PG16	11,0	28,0	100
M25-PG16 PA6 GF30 adapter	M25 x 1,5 - PG16	11,0	29,0	50
M25-PG21 PA6 GF30 adapter	M25 x 1,5 - PG21	11,0	31,0	50
M32-PG21 PA6 GF30 adapter	M32 x 1,5 - PG21	10,0	25,0	25
M32-PG29 PA6 GF30 adapter	M32 x 1,5 - PG29	11,0	33,0	25
M40-PG29 PA6 GF30 adapter	M40 x 1,5 - PG29	11,0	34,0	10
M50-PG36 PA6 GF30 adapter	M50 x 1,5 - PG36	11,0	37,0	10
M50-PG42 PA6 GF30 adapter	M50 x 1,5 - PG42	11,0	39,0	10
M63-PG48 PA6 GF30 adapter	M63 x 1,5 - PG48	11,0	40,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob adapters, PG to metric

Material : Polyamide PA6 GF30  
 External thread : PG (DIN 40430)  
 Internal thread : Metric (EN 60423)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : Dependent on the combination with other components  
 Standard color : Light grey (RAL 7035)



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG9-M12 PA6 GF30 adapter	PG9 - M12 x 1,5	8,0	20,0	100
PG9-M16 PA6 GF30 adapter	PG9 - M16 x 1,5	8,0	20,0	100
PG9-M20 PA6 GF30 adapter	PG9 - M20 x 1,5	8,0	20,0	100
PG11-M16 PA6 GF30 adapter	PG11 - M16 x 1,5	8,0	20,0	100
PG11-M20 PA6 GF30 adapter	PG11 - M20 x 1,5	8,0	20,0	100
PG13,5-M16 PA6 GF30 adapter	PG13,5 - M16 x 1,5	9,0	21,0	100
PG13,5-M20 PA6 GF30 adapter	PG13,5 - M20 x 1,5	9,0	21,0	100
PG13,5-M25 PA6 GF30 adapter	PG13,5 - M25 x 1,5	9,0	21,5	100
PG16-M20 PA6 GF30 adapter	PG16 - M20 x 1,5	10,0	22,0	100
PG16-M25 PA6 GF30 adapter	PG16 - M25 x 1,5	10,0	22,5	50
PG21-M25 PA6 GF30 adapter	PG21 - M25 x 1,5	11,0	23,5	50
PG21-M32 PA6 GF30 adapter	PG21 - M32 x 1,5	11,0	25,5	50
PG29-M32 PA6 GF30 adapter	PG29 - M32 x 1,5	11,0	25,5	50
PG29-M40 PA6 GF30 adapter	PG29 - M40 x 1,5	11,0	25,5	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)



## Polyamide PA6 GF30 Jacob reductions, metric

Material : Polyamide PA6 GF30  
 External thread : Metric (EN 60423)  
 Internal thread : Metric (EN 60423)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : Dependent on the combination with other components  
 Standard colors : Light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M16-M12 PA6 GF30 reduction	M16 x 1,5 - M12 x 1,5	8,0	12,0	100
M20-M12 PA6 GF30 reduction	M20 x 1,5 - M12 x 1,5	8,0	12,0	100
M20-M16 PA6 GF30 reduction	M20 x 1,5 - M16 x 1,5	8,0	12,0	100
M25-M12 PA6 GF30 reduction	M25 x 1,5 - M12 x 1,5	8,0	14,0	100
M25-M16 PA6 GF30 reduction	M25 x 1,5 - M16 x 1,5	8,0	14,0	100
M25-M20 PA6 GF30 reduction	M25 x 1,5 - M20 x 1,5	8,0	14,0	100
M32-M12 PA6 GF30 reduction	M32 x 1,5 - M12 x 1,5	10,0	16,0	50
M32-M16 PA6 GF30 reduction	M32 x 1,5 - M16 x 1,5	10,0	16,0	50
M32-M20 PA6 GF30 reduction	M32 x 1,5 - M20 x 1,5	10,0	16,0	50
M32-M25 PA6 GF30 reduction	M32 x 1,5 - M25 x 1,5	10,0	16,0	50
M40-M16 PA6 GF30 reduction	M40 x 1,5 - M16 x 1,5	10,0	16,0	50
M40-M20 PA6 GF30 reduction	M40 x 1,5 - M20 x 1,5	10,0	16,0	50
M40-M25 PA6 GF30 reduction	M40 x 1,5 - M25 x 1,5	10,0	16,0	50
M40-M32 PA6 GF30 reduction	M40 x 1,5 - M32 x 1,5	10,0	16,0	50
M50-M20 PA6 GF30 reduction	M50 x 1,5 - M20 x 1,5	12,0	18,0	25
M50-M25 PA6 GF30 reduction	M50 x 1,5 - M25 x 1,5	12,0	18,0	25
M50-M32 PA6 GF30 reduction	M50 x 1,5 - M32 x 1,5	12,0	18,0	25
M50-M40 PA6 GF30 reduction	M50 x 1,5 - M40 x 1,5	12,0	18,0	25
M63-M25 PA6 GF30 reduction	M63 x 1,5 - M25 x 1,5	12,0	18,0	25
M63-M32 PA6 GF30 reduction	M63 x 1,5 - M32 x 1,5	12,0	18,0	25
M63-M40 PA6 GF30 reduction	M63 x 1,5 - M40 x 1,5	12,0	18,0	25
M63-M50 PA6 GF30 reduction	M63 x 1,5 - M50 x 1,5	12,0	18,0	25

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF30 Jacob reductions, PG

Material : Polyamide PA6 GF30  
 External thread : PG (DIN 40430)  
 Internal thread : PG (DIN 40430)  
 Temperature range : -30 °C up to +100 °C  
 Protection grade : Dependent on the combination with other components  
 Standard colors : Light grey (RAL 7035), black (RAL 9005)



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG9-PG7 PA6 GF30 reduction*	PG9 - PG7	8,0	20,5	100
PG11-PG7 PA6 GF30 reduction	PG11 - PG7	8,0	14,0	100
PG11-PG9 PA6 GF30 reduction*	PG11 - PG9	8,0	22,5	100
PG13,5-PG7 PA6 GF30 reduction	PG13,5 - PG7	9,0	15,0	100
PG13,5-PG9 PA6 GF30 reduction	PG13,5 - PG9	9,0	15,0	100
PG13,5-PG11 PA6 GF30 reduction*	PG13,5 - PG11	9,0	24,0	100
PG16-PG9 PA6 GF30 reduction	PG16 - PG9	10,0	16,0	100
PG16-PG11 PA6 GF30 reduction	PG16 - PG11	10,0	16,0	100
PG16-PG13,5 PA6 GF30 reduction*	PG16 - PG13,5	10,0	27,0	100
PG21-PG11 PA6 GF30 reduction	PG21 - PG11	11,0	16,0	100
PG21-PG13,5 PA6 GF30 reduction	PG21 - PG13,5	11,0	16,0	100
PG21-PG16 PA6 GF30 reduction	PG21 - PG16	11,0	16,0	100
PG29-PG13,5 PA6 GF30 reduction	PG29 - PG13,5	11,0	17,0	50
PG29-PG16 PA6 GF30 reduction	PG29 - PG16	11,0	17,0	50
PG29-PG21 PA6 GF30 reduction	PG29 - PG21	11,0	17,0	50
PG36-PG21 PA6 GF30 reduction	PG36 - PG21	13,0	19,0	50
PG36-PG29 PA6 GF30 reduction	PG36 - PG29	18,0	24,0	50
PG42-PG21 PA6 GF30 reduction	PG42 - PG21	18,0	24,0	25
PG42-PG29 PA6 GF30 reduction	PG42 - PG29	18,0	24,0	25
PG42-PG36 PA6 GF30 reduction	PG42 - PG36	18,0	24,0	25
PG48-PG29 PA6 GF30 reduction	PG48 - PG29	18,0	24,0	25
PG48-PG36 PA6 GF30 reduction	PG48 - PG36	14,0	20,0	25
PG48-PG42 PA6 GF30 reduction	PG48 - PG42	17,0	23,0	25

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob cable glands, metric

Material	: Brass CuZn39Pb3, nickel-plated
Connecting thread	: Metric (EN 60423)
Temperature range	: -20 °C up to +100 °C
Protection grade	: IP68 – 5 bar / IP69K (tested for M12 - M25, M50, M63)
Test standard	: EN 62444 / UL 514B
UL / CSA-File	: E140310
Miscellaneous	: Also available in thread lengths of 10,0 / 11,0 / 13,0 and 14,0 mm : From M50 available with O-ring



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 brass cable gland	M12 x 1,5	3,0 - 6,0	5,0	100
M16 brass cable gland	M16 x 1,5	5,0 - 9,0	5,0	100
M20 brass cable gland	M20 x 1,5	9,0 - 13,0	6,0	100
M25 brass cable gland	M25 x 1,5	11,0 - 16,0	7,0	50
M32 brass cable gland	M32 x 1,5	14,0 - 21,0	8,0	25
M40 brass cable gland	M40 x 1,5	19,0 - 27,0	8,0	10
M50 brass cable gland	M50 x 1,5	24,0 - 35,0	9,0	5
M63 brass cable gland	M63 x 1,5	32,0 - 42,0	10,0	5
M63-1 brass cable gland	M63 x 1,5	38,0 - 48,0	10,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob cable glands, PG

Material	: Brass CuZn39Pb3, nickel-plated
Connecting thread	: PG (DIN 40430)
Temperature range	: -20 °C up to +100 °C
Protection grade	: IP68 – 5 bar
Miscellaneous	: Up to & including PG29, also available in a thread length of 15,0 mm : From PG36 available with O-ring



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
PG7 brass cable gland	PG7	3,0 - 6,5	5,0	100
PG9 brass cable gland	PG9	4,0 - 8,0	6,0	100
PG11 brass cable gland	PG11	5,0 - 10,0	6,0	50
PG13,5 brass cable gland	PG13,5	6,0 - 12,0	6,5	50
PG16 brass cable gland	PG16	10,0 - 14,0	6,5	50
PG21 brass cable gland	PG21	13,0 - 18,0	7,0	50
PG29 brass cable gland	PG29	18,0 - 25,0	8,0	25
PG36 brass cable gland	PG36	24,0 - 32,0	9,0	10
PG42 brass cable gland	PG42	30,0 - 38,0	10,0	5
PG48 brass cable gland	PG48	34,0 - 44,0	10,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob hexagonal locknuts, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -60 °C up to +200 °C



Typenr.	Connecting thread	Height (mm)	Packing (pcs)
M12 brass locknut	M12 x 1,5	2,8	100
M16 brass locknut	M16 x 1,5	2,8	100
M20 brass locknut	M20 x 1,5	3,0	100
M25 brass locknut	M25 x 1,5	3,5	100
M32 brass locknut	M32 x 1,5	4,0	100
M40 brass locknut	M40 x 1,5	5,0	50
M50 brass locknut	M50 x 1,5	5,0	50
M63 brass locknut	M63 x 1,5	6,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob hexagonal locknuts, PG

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -60 °C up to +200 °C



Typenr.	Connecting thread	Height (mm)	Packing (pcs)
PG7 brass locknut	PG7	2,8	100
PG9 brass locknut	PG9	2,8	100
PG11 brass locknut	PG11	3,0	100
PG13,5 brass locknut	PG13,5	3,0	100
PG16 brass locknut	PG16	3,0	100
PG21 brass locknut	PG21	3,5	100
PG29 brass locknut	PG29	4,0	100
PG36 brass locknut	PG36	5,0	50
PG42 brass locknut	PG42	5,0	50
PG48 brass locknut	PG48	5,5	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob screw plugs, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -60 °C up to +200 °C  
 Protection grade : IP54



#### Round

Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
M12 brass screw plug round	M12 x 1,5	16,0	5,0	8,0	100
M16 brass screw plug round	M16 x 1,5	20,0	6,0	9,0	100
M20 brass screw plug round	M20 x 1,5	24,0	6,5	9,5	100
M25 brass screw plug round	M25 x 1,5	28,0	7,0	11,0	100
M32 brass screw plug round	M32 x 1,5	35,0	8,0	12,0	50
M40 brass screw plug round	M40 x 1,5	45,0	8,0	12,0	50
M50 brass screw plug round	M50 x 1,5	55,0	9,0	15,0	25
M63 brass screw plug round	M63 x 1,5	68,0	10,0	16,0	10

#### Hexagonal

Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
M12 brass screw plug hexagonal	M12 x 1,5	14,0	5,0	7,5	100
M16 brass screw plug hexagonal	M16 x 1,5	18,0	5,0	8,0	100
M20 brass screw plug hexagonal	M20 x 1,5	22,0	6,0	9,0	100
M25 brass screw plug hexagonal	M25 x 1,5	28,0	6,5	10,0	100
M32 brass screw plug hexagonal	M32 x 1,5	35,0	7,0	10,5	50
M40 brass screw plug hexagonal	M40 x 1,5	44,0	8,0	12,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob screw plugs, PG

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -60 °C up to +200 °C  
 Protection grade : IP54



#### Round

Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
PG7 brass screw plug round	PG7	14,0	5,0	6,0	100
PG9 brass screw plug round	PG9	17,0	6,0	9,0	100
PG11 brass screw plug round	PG11	20,0	6,0	9,0	100
PG13,5 brass screw plug round	PG13,5	22,0	6,5	9,5	100
PG16 brass screw plug round	PG16	24,0	6,5	9,5	100
PG21 brass screw plug round	PG21	30,0	7,0	11,0	100
PG29 brass screw plug round	PG29	39,0	8,0	12,0	50
PG36 brass screw plug round	PG36	50,0	9,0	15,0	25
PG42 brass screw plug round	PG42	57,0	10,0	16,0	25
PG48 brass screw plug round	PG48	64,0	10,0	16,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob enlargers, metric

Material	: Brass CuZn39Pb3, nickel-plated
Connecting thread	: Metric (EN 60423)
Temperature range	: -60 °C up to +200 °C
Protection grade	: Dependent on the combination with other components
Comment	: Available on request with O-ring made of Nitrile rubber NBR



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M12-M16 brass enlarger	M12 x 1,5 - M16 x 1,5	5,0	16,0	100
M16-M20 brass enlarger	M16 x 1,5 - M20 x 1,5	5,0	16,5	100
M20-M25 brass enlarger	M20 x 1,5 - M25 x 1,5	6,0	18,5	50
M25-M32 brass enlarger	M25 x 1,5 - M32 x 1,5	7,0	20,5	25
M32-M40 brass enlarger	M32 x 1,5 - M40 x 1,5	8,0	23,5	25
M40-M50 brass enlarger	M40 x 1,5 - M50 x 1,5	8,0	30,0	10
M50-M63 brass enlarger	M50 x 1,5 - M63 x 1,5	9,0	32,5	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob enlargers, PG

Material	: Brass CuZn39Pb3, nickel-plated
Connecting thread	: PG (DIN 40430)
Temperature range	: -60 °C up to +200 °C
Protection grade	: Dependent on the combination with other components



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG7-PG9 brass enlarger	PG7 - PG9	5,0	15,0	100
PG9-PG11 brass enlarger	PG9 - PG11	6,0	16,5	100
PG9-PG13,5 brass enlarger	PG9 - PG13,5	6,0	17,5	100
PG11-PG13,5 brass enlarger	PG11 - PG13,5	6,0	17,5	100
PG11-PG16 brass enlarger	PG11 - PG16	6,5	19,0	100
PG11-PG21 brass enlarger	PG11 - PG21	6,5	21,0	100
PG13,5-PG16 brass enlarger	PG13,5 - PG16	6,5	19,0	100
PG13,5-PG21 brass enlarger	PG13,5 - PG21	6,5	21,0	100
PG16-PG21 brass enlarger	PG16 - PG21	6,5	21,0	100
PG16-PG29 brass enlarger	PG16 - PG29	6,5	22,5	50
PG21-PG29 brass enlarger	PG21 - PG29	7,0	23,0	50
PG29-PG36 brass enlarger	PG29 - PG36	8,0	27,5	25
PG36-PG42 brass enlarger	PG36 - PG42	9,0	31,0	10
PG42-PG48 brass enlarger	PG42 - PG48	10,0	33,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)



### Brass Jacob adapters, metric to PG

Material	: Brass CuZn39Pb3, nickel-plated
External thread	: Metric (EN 60423)
Internal thread	: PG (DIN 40430)
Temperature range	: -60 °C up to +200 °C
Protection grade	: Dependent on the combination with other components



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M12-PG7 brass adapter	M12 x 1,5 - PG7	6,0	16,0	100
M12-PG9 brass adapter	M12 x 1,5 - PG9	6,0	16,5	100
M16-PG11 brass adapter	M16 x 1,5 - PG11	6,0	17,0	100
M20-PG11 brass adapter	M20 x 1,5 - PG11	6,5	17,5	100
M20-PG13,5 brass adapter	M20 x 1,5 - PG13,5	6,5	19,0	100
M25-PG16 brass adapter	M25 x 1,5 - PG16	7,0	20,5	50
M25-PG21 brass adapter	M25 x 1,5 - PG21	7,0	22,0	50
M32-PG29 brass adapter	M32 x 1,5 - PG29	8,0	24,5	25
M40-PG29 brass adapter	M40 x 1,5 - PG29	8,0	24,5	25
M50-PG36 brass adapter	M50 x 1,5 - PG36	9,0	28,5	10
M50-PG42 brass adapter	M50 x 1,5 - PG42	9,0	31,0	5
M63-PG48 brass adapter	M63 x 1,5 - PG48	10,0	33,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob adapters, PG to metric

Material	: Brass CuZn39Pb3, nickel-plated
External thread	: PG (DIN 40430)
Internal thread	: Metric (EN 60423)
Temperature range	: -60 °C up to +200 °C
Protection grade	: Dependent on the combination with other components



#### Hexagonal

Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG7-M12 brass adapter hexagonal	PG7 - M12 x 1,5	5,0	15,0	100
PG9-M16 brass adapter hexagonal	PG9 - M16 x 1,5	6,0	16,0	100
PG11-M16 brass adapter hexagonal	PG11 - M16 x 1,5	6,0	16,0	100
PG13,5-M20 brass adapter hexagonal	PG13,5 - M20 x 1,5	6,5	17,5	100
PG16-M20 brass adapter hexagonal	PG16 - M20 x 1,5	6,5	17,5	100
PG16-M25 brass adapter hexagonal	PG16 - M25 x 1,5	6,5	18,5	100
PG21-M25 brass adapter hexagonal	PG21 - M25 x 1,5	7,0	19,0	100
PG21-M32 brass adapter hexagonal	PG21 - M32 x 1,5	7,0	20,0	100
PG29-M40 brass adapter hexagonal	PG29 - M40 x 1,5	8,0	21,0	50
PG36-M50 brass adapter hexagonal	PG36 - M50 x 1,5	9,0	23,0	25
PG42-M63 brass adapter hexagonal	PG42 - M63 x 1,5	10,0	25,0	10

#### Knurled

Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG16-M20 brass adapter knurled	PG16 - M20 x 1,5	6,5	9,5	100
PG21-M25 brass adapter knurled	PG21 - M25 x 1,5	7,0	10,0	100
PG29-M25 brass adapter knurled	PG29 - M25 x 1,5	8,0	11,5	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob reductions, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -60 °C up to +200 °C  
 Protection grade : Dependent on the combination with other components



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M16-M12 brass reduction	M16 x 1,5 - M12 x 1,5	6,0	8,5	100
M20-M12 brass reduction	M20 x 1,5 - M12 x 1,5	6,5	9,0	100
M20-M16 brass reduction	M20 x 1,5 - M16 x 1,5	6,5	9,0	100
M25-M16 brass reduction	M25 x 1,5 - M16 x 1,5	7,0	10,0	100
M25-M20 brass reduction	M25 x 1,5 - M20 x 1,5	7,0	10,0	100
M32-M20 brass reduction	M32 x 1,5 - M20 x 1,5	8,0	11,5	50
M32-M25 brass reduction	M32 x 1,5 - M25 x 1,5	8,0	11,5	50
M40-M25 brass reduction	M40 x 1,5 - M25 x 1,5	9,0	12,5	25
M40-M32 brass reduction	M40 x 1,5 - M32 x 1,5	9,0	12,5	25
M50-M32 brass reduction	M50 x 1,5 - M32 x 1,5	10,0	14,0	10
M50-M40 brass reduction	M50 x 1,5 - M40 x 1,5	10,0	14,0	10
M63-M40 brass reduction	M63 x 1,5 - M40 x 1,5	10,0	14,0	10
M63-M50 brass reduction	M63 x 1,5 - M50 x 1,5	10,0	14,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob reductions, PG

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -60 °C up to +200 °C  
 Protection grade : Dependent on the combination with other components



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
PG9-PG7 brass reduction	PG9 - PG7	6,0	8,5	100
PG11-PG7 brass reduction	PG11 - PG7	6,0	8,5	100
PG11-PG9 brass reduction	PG11 - PG9	6,0	8,5	100
PG13,5-PG7 brass reduction	PG13,5 - PG7	6,5	9,0	100
PG13,5-PG9 brass reduction	PG13,5 - PG9	6,5	9,0	100
PG13,5-PG11 brass reduction	PG13,5 - PG11	6,5	9,0	100
PG16-PG7 brass reduction	PG16 - PG7	6,5	9,5	100
PG16-PG9 brass reduction	PG16 - PG9	6,5	9,5	100
PG16-PG11 brass reduction	PG16 - PG11	6,5	9,5	100
PG16-PG13,5 brass reduction	PG16 - PG13,5	6,5	9,5	100
PG21-PG11 brass reduction	PG21 - PG11	7,0	10,0	100
PG21-PG13,5 brass reduction	PG21 - PG13,5	7,0	10,0	100
PG21-PG16 brass reduction	PG21 - PG16	7,0	10,0	100
PG29-PG16 brass reduction	PG29 - PG16	8,0	11,5	50
PG29-PG21 brass reduction	PG29 - PG21	8,0	11,5	50
PG36-PG21 brass reduction	PG36 - PG21	9,0	12,5	25
PG36-PG29 brass reduction	PG36 - PG29	9,0	12,5	25
PG42-PG29 brass reduction	PG42 - PG29	10,0	14,0	10
PG42-PG36 brass reduction	PG42 - PG36	10,0	14,0	10
PG48-PG36 brass reduction	PG48 - PG36	10,0	14,0	10
PG48-PG42 brass reduction	PG48 - PG42	10,0	14,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

#### Stainless steel Jacob cable glands, metric

Material : Stainless steel 1.4305  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 / IP69K (tested for M12 - M25, M50, M63)  
 Test standard : UL 514B  
 UL / CSA-File : E140310



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 stainless steel cable gland	M12 x 1,5	3,0 - 6,0	5,0	50
M16 stainless steel cable gland	M16 x 1,5	5,0 - 9,0	5,0	50
M20 stainless steel cable gland	M20 x 1,5	9,0 - 13,0	6,0	50
M25 stainless steel cable gland	M25 x 1,5	11,0 - 16,0	7,0	50
M32 stainless steel cable gland	M32 x 1,5	14,0 - 21,0	8,0	25
M40 stainless steel cable gland	M40 x 1,5	19,0 - 27,0	8,0	10
M50 stainless steel cable gland	M50 x 1,5	24,0 - 35,0	9,0	5
M63 stainless steel cable gland	M63 x 1,5	32,0 - 42,0	10,0	5

#### Stainless steel Jacob hexagonal locknuts, metric

Material : Stainless steel 1.4305  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -60 °C up to +200 °C



#### Hexagonal

Typenr.	Connecting thread	Height (mm)	Packing (pcs)
M12 stainless steel locknut	M12 x 1,5	2,8	50
M16 stainless steel locknut	M16 x 1,5	2,8	50
M20 stainless steel locknut	M20 x 1,5	3,0	50
M25 stainless steel locknut	M25 x 1,5	3,5	50
M32 stainless steel locknut	M32 x 1,5	4,0	25
M40 stainless steel locknut	M40 x 1,5	5,0	10
M50 stainless steel locknut	M50 x 1,5	5,0	5
M63 stainless steel locknut	M63 x 1,5	6,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

#### EMC brass Jacob cable glands, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 - 5 bar / IP69K (tested for M12 - M25, M50, M63)  
 Test standard : EN 62444 / UL 514B  
 UL / CSA-File : E140310  
 Miscellaneous : Also available in thread lengths of 10,0 / 11,0 / 13,0 and 14,0 mm  
 : From M50 available with O-ring



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 EMC brass cable gland	M12 x 1,5	3,0 - 6,0	5,0	100
M16 EMC brass cable gland	M16 x 1,5	5,0 - 9,0	5,0	100
M20 EMC brass cable gland	M20 x 1,5	9,0 - 13,0	6,0	100
M25 EMC brass cable gland	M25 x 1,5	11,0 - 16,0	7,0	50
M32 EMC brass cable gland	M32 x 1,5	14,0 - 21,0	8,0	25
M40 EMC brass cable gland	M40 x 1,5	19,0 - 27,0	8,0	10
M50 EMC brass cable gland	M50 x 1,5	24,0 - 35,0	9,0	5
M63 EMC brass cable gland	M63 x 1,5	32,0 - 42,0	10,0	5
M63-1 EMC brass cable gland	M63 x 1,5	38,0 - 48,0	10,0	5

#### EMC stainless steel Jacob cable glands, metric

Material : Stainless steel 1.4305  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 / IP69K (tested for M16 - M25)  
 Test standard : UL 514B  
 UL / CSA-File : E140310  
 Comment : Available on request with sealing ring and O-ring made of FKM



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M16 EMC stainless steel cable gland	M16 x 1,5	5,0 - 9,0	5,0	50
M20 EMC stainless steel cable gland	M20 x 1,5	9,0 - 13,0	6,0	50
M25 EMC stainless steel cable gland	M25 x 1,5	11,0 - 16,0	7,0	50
M32 EMC stainless steel cable gland	M32 x 1,5	14,0 - 21,0	8,0	25

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Brass Jacob hexagonal locknuts, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -60 °C up to +200 °C



Typenr.	Connecting thread	Height (mm)	Packing (pcs)
M12 brass locknut	M12 x 1,5	2,8	100
M16 brass locknut	M16 x 1,5	2,8	100
M20 brass locknut	M20 x 1,5	3,0	100
M25 brass locknut	M25 x 1,5	3,5	100
M32 brass locknut	M32 x 1,5	4,0	100
M40 brass locknut	M40 x 1,5	5,0	50
M50 brass locknut	M50 x 1,5	5,0	50
M63 brass locknut	M63 x 1,5	6,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

### Ex Polyamide PA6 Jacob cable glands, metric

Material : Polyamide PA6  
 Connecting thread : Metric (EN 60423)  
 Group (zone) : II 2G (1, 2), II 2D (21, 22)  
 Marking : Ex e IIC Gb, Ex tb IIIC Db  
 Temperature range : -20 °C up to +70 °C (M12, M16, M20, M25, M32)  
 : -55 °C up to +70 °C (M40, M50, M63)  
 Protection grade : IP66  
 Test standard : EN 60079-0:2012, IEC 60079-0:2011  
 : EN 60079-7:2007, IEC 60079-7:2006  
 : EN 60079-31:2009, IEC 60079-31:2008  
 EC-type certificate : PTB 99 ATEX 3101 X (M12 x 1,5 - M16 x 1,5)  
 : PTB 99 ATEX 3128 X (M20 x 1,5 - M63 x 1,5)  
 : PTB 14 ATEX 1015 X  
 IECEx certificate : IECEx PTB 05.0004X, IECEx PTB 14.0027X  
 Standard colors : Black (RAL 9005), blue (RAL 5015)  
 Miscellaneous : Also available in thread lengths of 12,0 / 13,0 / 15,0 and 16,0 mm



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 Ex PA6 cable gland	M12 x 1,5	5,0 - 7,0	8,0	20
M16 Ex PA6 cable gland	M16 x 1,5	7,0 - 10,0	8,0	20
M20 Ex PA6 cable gland	M20 x 1,5	9,5 - 13,0	8,0	20
M25 Ex PA6 cable gland	M25 x 1,5	13,5 - 17,5	8,0	20
M32 Ex PA6 cable gland	M32 x 1,5	17,5 - 21,0	10,0	20
M40 Ex PA6 cable gland	M40 x 1,5	22,0 - 28,0	10,0	10
M50 Ex PA6 cable gland	M50 x 1,5	28,0 - 35,0	12,0	10
M63 Ex PA6 cable gland	M63 x 1,5	36,0 - 48,0	12,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Ex brass Jacob cable glands, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Group (zone) : 2G, 2D and 3G / 1, 2, 21, 22  
 Type of protection : Ex e, increased safety  
 : Ex tD A21 - Protection by enclosures  
 Temperature range : -20 °C up to +80 °C  
 Protection grade : IP68 - 5 bar  
 Test standard : EN 60079-0 / EN 60079-7  
 : EN 61241-0 / EN 61241-1  
 EC-type certificate : DMT 99 ATEX E016  
 Miscellaneous : Also available in thread lengths of 10,0 / 11,0 / 13,0 and 14,0 mm



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 Ex brass cable gland	M12 x 1,5	3,0 - 6,0	5,0	100
M12-1 Ex brass cable gland	M12 x 1,5	3,0 - 6,5	5,0	100
M16 Ex brass cable gland	M16 x 1,5	5,0 - 9,0	5,0	100
M20 Ex brass cable gland	M20 x 1,5	9,0 - 13,0	6,0	100
M20-1 Ex brass cable gland	M20 x 1,5	6,0 - 12,0	6,0	100
M25 Ex brass cable gland	M25 x 1,5	11,0 - 16,0	7,0	50
M32 Ex brass cable gland	M32 x 1,5	14,0 - 21,0	8,0	25
M40 Ex brass cable gland	M40 x 1,5	19,0 - 27,0	8,0	10
M50 Ex brass cable gland	M50 x 1,5	24,0 - 35,0	9,0	5
M63 Ex brass cable gland	M63 x 1,5	32,0 - 42,0	10,0	5
M63-1 Ex brass cable gland	M63 x 1,5	38,0 - 48,0	10,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Ex EMC brass Jacob cable glands, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Group (zone) : 2G, 2D and 3G / 1, 2, 21, 22  
 Type of protection : Ex e, increased safety  
 : Ex tD A21 - Protection by enclosures  
 Temperature range : -20 °C up to +80 °C  
 Protection grade : IP68 - 5 bar  
 Test standard : EN 60079-0 / EN 60079-7  
 : EN 61241-0 / EN 61241-1  
 EC-type certificate : DMT 99 ATEX E016  
 Miscellaneous : Also available in thread lengths of 10,0 / 11,0 / 13,0 and 14,0 mm



Typenr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Packing (pcs)
M12 Ex EMC brass cable gland	M12 x 1,5	3,0 - 6,0	5,0	100
M12-1 Ex EMC brass cable gland	M12 x 1,5	3,0 - 6,5	5,0	100
M16 Ex EMC brass cable gland	M16 x 1,5	5,0 - 9,0	5,0	100
M20 Ex EMC brass cable gland	M20 x 1,5	9,0 - 13,0	6,0	100
M20-1 Ex EMC brass cable gland	M20 x 1,5	6,0 - 12,0	6,0	100
M25 Ex EMC brass cable gland	M25 x 1,5	11,0 - 16,0	7,0	50
M32 Ex EMC brass cable gland	M32 x 1,5	14,0 - 21,0	8,0	25
M40 Ex EMC brass cable gland	M40 x 1,5	19,0 - 27,0	8,0	10
M50 Ex EMC brass cable gland	M50 x 1,5	24,0 - 35,0	9,0	5
M63 Ex EMC brass cable gland	M63 x 1,5	32,0 - 42,0	10,0	5
M63-1 Ex EMC brass cable gland	M63 x 1,5	38,0 - 48,0	10,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)



## Brass Jacob hexagonal locknuts, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -60 °C up to +200 °C



Typenr.	Connecting thread	Height (mm)	Packing (pcs)
M12 brass locknut	M12 x 1,5	2,8	100
M16 brass locknut	M16 x 1,5	2,8	100
M20 brass locknut	M20 x 1,5	3,0	100
M25 brass locknut	M25 x 1,5	3,5	100
M32 brass locknut	M32 x 1,5	4,0	100
M40 brass locknut	M40 x 1,5	5,0	50
M50 brass locknut	M50 x 1,5	5,0	50
M63 brass locknut	M63 x 1,5	6,0	50

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Ex brass Jacob screw plugs, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Group (zone) : 2G, 2D and 3G / 1, 2, 21, 22  
 Type of protection : Ex e, increased safety  
 : Ex tD A21 - Protection by enclosures  
 Temperature range : -30 °C up to +80 °C  
 Protection grade : IP68  
 Test standard : EN 60079-0 / EN 60079-7  
 : EN 61241-0 / EN 61241-1  
 EC-type certificate : DMT 99 ATEX E016



Typenr.	Connecting thread	Ø (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
M12 Ex brass screw plug	M12 x 1,5	16,0	5,0	8,0	100
M16 Ex brass screw plug	M16 x 1,5	20,0	6,0	9,0	100
M20 Ex brass screw plug	M20 x 1,5	24,0	6,5	9,5	100
M25 Ex brass screw plug	M25 x 1,5	28,0	7,0	11,0	100
M32 Ex brass screw plug	M32 x 1,5	35,0	8,0	12,0	50
M40 Ex brass screw plug	M40 x 1,5	45,0	8,0	12,0	50
M50 Ex brass screw plug	M50 x 1,5	55,0	9,0	15,0	25
M63 Ex brass screw plug	M63 x 1,5	68,0	10,0	16,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Ex brass Jacob enlargers, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Group (zone) : 2G, 2D and 3G / 1, 2, 21, 22  
 Type of protection : Ex e, increased safety  
 : Ex tD A21 - Protection by enclosures  
 Temperature range : -30 °C up to +80 °C  
 Protection grade : IP68  
 Test standard : EN 60079-0 / EN 60079-7  
 : EN 61241-0 / EN 61241-1  
 EC-type certificate : DMT 99 ATEX E016

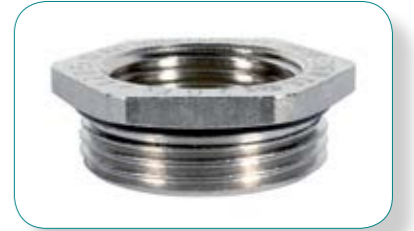


Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M12-M16 Ex brass enlarger	M12 x 1,5 - M16 x 1,5	5,0	16,0	100
M16-M20 Ex brass enlarger	M16 x 1,5 - M20 x 1,5	5,0	16,5	100
M20-M25 Ex brass enlarger	M20 x 1,5 - M25 x 1,5	6,0	18,5	50
M25-M32 Ex brass enlarger	M25 x 1,5 - M32 x 1,5	7,0	20,5	25
M32-M40 Ex brass enlarger	M32 x 1,5 - M40 x 1,5	8,0	23,5	25
M40-M50 Ex brass enlarger	M40 x 1,5 - M50 x 1,5	8,0	30,0	10
M50-M63 Ex brass enlarger	M50 x 1,5 - M63 x 1,5	9,0	32,5	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Ex brass Jacob reductions, metric

Material : Brass CuZn39Pb3, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Group (zone) : 2G, 2D and 3G / 1, 2, 21, 22  
 Type of protection : Ex e, increased safety  
 : Ex tD A21 - Protection by enclosures  
 Temperature range : -30 °C up to +80 °C  
 Protection grade : IP68  
 Test standard : EN 60079-0 / EN 60079-7  
 : EN 61241-0 / EN 61241-1  
 EC-type certificate : DMT 99 ATEX E016



Typenr.	Connecting thread from - to	Thread length (mm)	Height (mm)	Packing (pcs)
M16-M12 Ex brass reduction	M16 x 1,5 - M12 x 1,5	5,0	8,0	100
M20-M12 Ex brass reduction	M20 x 1,5 - M12 x 1,5	6,0	9,0	100
M20-M16 Ex brass reduction	M20 x 1,5 - M16 x 1,5	6,0	9,0	100
M25-M16 Ex brass reduction	M25 x 1,5 - M16 x 1,5	7,0	10,0	100
M25-M20 Ex brass reduction	M25 x 1,5 - M20 x 1,5	7,0	10,0	100
M32-M20 Ex brass reduction	M32 x 1,5 - M20 x 1,5	8,0	11,0	50
M32-M25 Ex brass reduction	M32 x 1,5 - M25 x 1,5	8,0	11,0	50
M40-M25 Ex brass reduction	M40 x 1,5 - M25 x 1,5	8,0	12,0	25
M40-M32 Ex brass reduction	M40 x 1,5 - M32 x 1,5	8,0	12,0	25
M50-M32 Ex brass reduction	M50 x 1,5 - M32 x 1,5	9,0	13,0	10
M50-M40 Ex brass reduction	M50 x 1,5 - M40 x 1,5	9,0	13,0	10
M63-M50 Ex brass reduction	M63 x 1,5 - M50 x 1,5	10,0	14,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 V-2 Jacob cable glands with spiral top, metric

Material : Polyamide PA6 V-2  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 – 5 bar  
 Test standard : EN 62444 / UL 514B  
 UL / CSA-File : E140310  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)



Typnr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
M12 PA6 V-2 cable gland spiral top	M12 x 1,5	3,0 - 6,5	8,0	63,5	100
M16 PA6 V-2 cable gland spiral top	M16 x 1,5	5,0 - 10,0	15,0	94,5	100
M20 PA6 V-2 cable gland spiral top	M20 x 1,5	6,0 - 12,0	11,0	101,5	50
M20-1 PA6 V-2 cable gland spiral top	M20 x 1,5	10,0 - 14,0	15,0	116,0	25
M25 PA6 V-2 cable gland spiral top	M25 x 1,5	13,0 - 18,0	15,0	132,5	25

## Polyamide PA6 V-2 Jacob cable glands with spiral top, PG

Material : Polyamide PA6 V-2  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68 – 5 bar  
 Test standard : UL 514B  
 UL / CSA-File : E140310  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)



Typnr.	Connecting thread	Cable diameter (mm)	Thread length (mm)	Height (mm)	Packing (pcs)
PG7 PA6 V-2 cable gland spiral top	PG7	3,0 - 6,5	8,0	63,0	100
PG9 PA6 V-2 cable gland spiral top	PG9	4,0 - 8,0	8,0	74,0	100
PG11 PA6 V-2 cable gland spiral top	PG11	5,0 - 10,0	8,0	87,0	100
PG13,5 PA6 V-2 cable gland spiral top	PG13,5	6,0 - 12,0	9,0	98,0	50
PG16 PA6 V-2 cable gland spiral top	PG16	10,0 - 14,0	10,0	112,0	25
PG21 PA6 V-2 cable gland spiral top	PG21	13,0 - 18,0	11,0	130,0	25

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 GF25 Jacob cable glands, elbow, metric

Material : Polyamide PA6 GF25  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : Max. IP68  
 Standard color : Light grey (RAL 7035)



Typnr.	Connecting thread	Thread length (mm)	Height (mm)	Diameter (mm)	Packing (pcs)
M16 PA6 GF25 cable gland elbow	M16 x 1,5	12,0	38,0	12,2	100
M20 PA6 GF25 cable gland elbow	M20 x 1,5	12,0	42,0	16,0	50
M25 PA6 GF25 cable gland elbow	M25 x 1,5	12,0	48,5	21,0	50
M32 PA6 GF25 cable gland elbow	M32 x 1,5	14,0	57,5	27,6	25
M40 PA6 GF25 cable gland elbow	M40 x 1,5	14,0	67,0	35,0	10

## Polyamide PA6 GF25 Jacob cable glands, elbow, PG

Material : Polyamide PA6 GF25  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : Max. IP68  
 Standard color : Light grey (RAL 7035)



Typnr.	Connecting thread	Thread length (mm)	Height (mm)	Diameter (mm)	Packing (pcs)
PG9 PA6 GF25 cable gland elbow	PG9	11,0	30,0	11,5	100
PG11 PA6 GF25 cable gland elbow	PG11	11,0	33,0	14,5	50
PG13,5 PA6 GF25 cable gland elbow	PG13,5	11,5	35,5	16,0	50
PG16 PA6 GF25 cable gland elbow	PG16	11,5	38,5	18,5	50
PG21 PA6 GF25 cable gland elbow	PG21	13,0	46,0	24,0	25
PG29 PA6 GF25 cable gland elbow	PG29	15,0	59,0	32,0	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Zinc die-casting Jacob cable glands, elbow, metric

Material : Zinc die-casting, nickel-plated  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : Max. IP68  
 : Dependent on the combination with other components



Typenr.	Connecting thread	Thread length (mm)	Height (mm)	Diameter (mm)	Packing (pcs)
M16 zinc die-casting cable gland elbow	M16 x 1,5	16,0	38,0	12,2	100
M20 zinc die-casting cable gland elbow	M20 x 1,5	16,0	42,0	16,0	50
M25 zinc die-casting cable gland elbow	M25 x 1,5	16,5	48,5	21,0	50
M32 zinc die-casting cable gland elbow	M32 x 1,5	18,5	57,5	27,6	25
M40 zinc die-casting cable gland elbow	M40 x 1,5	19,0	67,0	35,0	10

## Zinc die-casting Jacob cable glands, elbow, PG

Material : Zinc die-casting, nickel-plated  
 Connecting thread : PG (DIN 40430)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : Max. IP68  
 : Dependent on the combination with other components  
 Miscellaneous : Also available in thread lengths of 11,0 / 11,4 / 11,6 / 13,8  
 : and 15,8 mm



Typenr.	Connecting thread	Thread length (mm)	Height (mm)	Diameter (mm)	Packing (pcs)
PG9 zinc die-casting cable gland elbow	PG9	6,0	25,0	11,5	100
PG11 zinc die-casting cable gland elbow	PG11	6,0	28,0	14,3	50
PG13,5 zinc die-casting cable gland elbow	PG13,5	6,5	30,5	16,0	50
PG16 zinc die-casting cable gland elbow	PG16	6,5	33,5	18,5	50
PG21 zinc die-casting cable gland elbow	PG21	6,8	38,8	23,8	25
PG29 zinc die-casting cable gland elbow	PG29	8,0	52,0	32,0	10

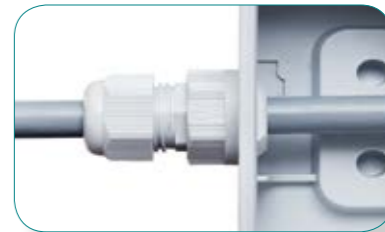
In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 V-2 Jacob "Perfect fix" cable glands, metric

Material : Polyamide PA6 V-2  
 Connecting thread : Metric (EN 60423)  
 Temperature range : -20 °C up to +100 °C  
 Protection grade : IP68  
 Standard colors : Silver grey (RAL 7001), light grey (RAL 7035), black (RAL 9005)



- Properties
- Quick and easy installation without special tools
  - Trouble-free mounting and dismantling from one side
  - Locknut on the inner side dispensable
  - Advantageous for installation in areas with limited space
  - Installation in clearance holes with dimensions according to EN 62444
  - No inner thread required
  - Continuously adjustable in wall thickness from 1 - 4 mm
  - Integrated anchorage
  - Wide sealing and clamping range



Typenr.	Hole diameter (mm)	Wall thickness (mm)	Cable diameter (mm)	Height (mm)	Packing (pcs)
M16 PA6 V-2 cable gland Perfect fix	16,1 - 16,3	1 - 4	5,0 - 10,0	38,5	100
M20 PA6 V-2 cable gland Perfect fix	20,1 - 20,4	1 - 4	8,0 - 13,0	42,5	100
M25 PA6 V-2 cable gland Perfect fix	25,1 - 25,4	1 - 4	11,0 - 17,0	48,0	50
M32 PA6 V-2 cable gland Perfect fix	32,1 - 32,4	1 - 4	15,0 - 21,0	58,5	25

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Polyamide PA6 V-0 Jacob venting elements, metric

Material : Polyamide PA6 V-0 (for high demands concerning fire safety)  
 Connecting thread : Metric (EN 60423)  
 Typical air flow : > 400 ml / min / cm<sup>2</sup> at Δp = 0,07 bar  
 Water entry pressure : ≥ 0,83 bar (dynamic WEP, 30 seconds)  
 Temperature range : -40 °C up to +100 °C  
 Protection grade : IP66 / IP68 - 0,6 bar (60 min.) / IP69  
 Standard colors : Light grey (RAL 7035) and black (RAL 9005)  
 : when using standard thread lengths  
 : Light grey (RAL 7035) when using short thread length

- Properties
- Protection for hermetically sealed electro-technical and electronic enclosures against condensation water from alternating temperature and pressure
  - Continuous ventilation and adaption of the inner pressure
  - Hydrophobic and oleophobic PES-membrane



### Connecting thread standard length

Typenr.	Connecting thread	Thread length (mm)	Height (mm)	Packing (pcs)
M12 PA6 V-0 venting element standard length	M12 x 1,5	10,0	17,8	100
M20 PA6 V-0 venting element standard length	M20 x 1,5	10,0	21,6	10
M40 PA6 V-0 venting element standard length	M40 x 1,5	18,0	35,6	5

### Connecting thread short length

Typenr.	Connecting thread	Thread length (mm)	Height (mm)	Packing (pcs)
M12 PA6 V-0 venting element short length	M12 x 1,5	6,0	13,8	100

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Stainless steel Jacob venting elements, metric

Material : Stainless steel 1.4305  
 Connecting thread : Metric (EN 60423)  
 Typical air flow : > 400 ml / min / cm<sup>2</sup> at Δp = 0,07 bar  
 Water entry pressure : ≥ 0,83 bar (dynamic WEP, 30 seconds)  
 Temperature range : -40 °C up to +100 °C  
 Protection grade : IP66 / IP68 - 0,6 bar (60 min.) / IP69

- Properties
- Protection for hermetically sealed electro-technical and electronic enclosures against condensation water from alternating temperature and pressure
  - Continuous ventilation and adaption of the inner pressure
  - Hydrophobic and oleophobic PES-membrane



### Connecting thread short length

Typenr.	Connecting thread	Thread length (mm)	Height (mm)	Packing (pcs)
M12 stainless steel venting element short length	M12 x 1,5	6,0	13,0	25
M20 stainless steel venting element short length	M20 x 1,5	6,0	13,0	10
M40 stainless steel venting element short length	M40 x 1,5	8,0	18,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)



## Sealing inserts, metric

Material : TPE TPS  
 Temperature range : -30 °C up to +100 °C  
 Properties : Sealing insert for the installation of several single cables

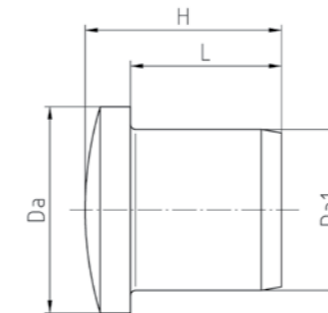


Typenr.	Size	Number of holes x hole diameter (mm)	Height (mm)	Diameter of sealing insert (mm)	Packing (pcs)
M12 2x1,6 sealing insert	M12	2x 1,6	6,6	8,5	50
M12 3x2,3 sealing insert	M12	3x 2,3	6,6	8,5	50
M12 4x2,0 sealing insert	M12	4x 2,0	6,6	8,5	50
M16 2x4,0 sealing insert	M16	2x 4,0	7,6	11,7	50
M16 2x4,5 sealing insert	M16	2x 4,5	7,6	11,7	50
M16 4x2,3 sealing insert	M16	4x 2,3	7,6	11,7	50
M16 4x3,5 sealing insert	M16	4x 3,5	7,6	11,7	50
M20 2x4,0 sealing insert	M20	2x 4,0	7,5	15,1	50
M20 2x6,0 sealing insert	M20	2x 6,0	7,5	15,1	50
M20 4x5,0 sealing insert	M20	4x 5,0	7,5	15,1	50
M25 2x6,0 sealing insert	M25	2x 6,0	9,3	19,8	50
M25 2x8,0 sealing insert	M25	2x 8,0	9,3	19,8	50
M25 3x4,0 sealing insert	M25	3x 4,0	9,3	19,8	50
M25 3x6,0 sealing insert	M25	3x 6,0	9,3	19,8	50
M25 3x7,0 sealing insert	M25	3x 7,0	9,3	19,8	50
M25 4x5,0 sealing insert	M25	4x 5,0	9,3	19,8	50
M25 4x6,0 sealing insert	M25	4x 6,0	9,3	19,8	50
M25 4x6,5 sealing insert	M25	4x 6,5	9,3	19,8	50
M25 5x4,0 sealing insert	M25	5x 4,0	9,3	19,8	50
M25 6x4,0 sealing insert	M25	6x 4,0	9,3	19,8	50
M32 2x8,0 sealing insert	M32	2x 8,0	12,5	25,1	25
M32 3x8,0 sealing insert	M32	3x 8,0	12,5	25,1	25
M32 4x7,0 sealing insert	M32	4x 7,0	12,5	25,1	25
M32 4x8,0 sealing insert	M32	4x 8,0	12,5	25,1	25
M32 4x8,5 sealing insert	M32	4x 8,5	12,5	25,1	25
M32 6x4,0 sealing insert	M32	6x 4,0	12,5	25,1	25
M32 6x6,0 sealing insert	M32	6x 6,0	12,5	25,1	25
M40 4x10,0 sealing insert	M40	4x 10,0	15,0	32,3	10
M40 5x8,5 sealing insert	M40	5x 8,5	15,0	32,3	10
M40 8x6,5 sealing insert	M40	8x 6,5	15,0	32,3	10

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Blanking plugs, metric

Material : Polyamide PA6 GF30  
 Temperature range : -30 °C up to +100 °C  
 Standard colors : Light grey (RAL 7035), black (RAL 9005)  
 Comment : Black only available in M12, M16, M20 and M25  
 : Choose the corresponding blanking plug so, that Da1 is at most 1 mm smaller than Ø Cmax.  
 Properties : Single part for use in combination with PERFECT cable gland

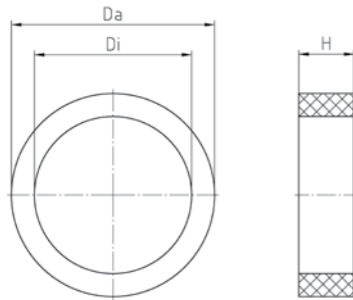


Typenr.	Size	Length (mm)	Height (mm)	Da (mm)	Da1 (mm)	Packing (pcs)
M12 blanking plug	M12	9,0	12,5	10,0	5,5	50
M16 blanking plug	M16	12,0	16,0	13,5	9,5	50
M16-1 blanking plug	M16	14,0	18,0	13,5	9,0	50
M20 blanking plug	M20	12,0	16,5	16,5	12,0	50
M25 blanking plug	M25	15,0	19,5	20,5	16,0	50
M32 blanking plug	M32	17,0	21,5	24,5	20,0	25
M40 blanking plug	M40	20,0	24,0	32,0	27,0	10
M50 blanking plug	M50	25,0	29,0	39,0	35,0	5
M63 blanking plug	M63	25,0	29,0	52,0	42,0	5

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Sealing rings, metric and PG

Material : SBR / NBR  
 Temperature range : -30 °C up to +100 °C



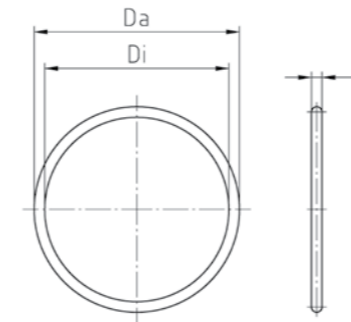
Typenr.	Size	Height (mm)	Da (mm)	Di (mm)	Packing (pcs)
Sealing ring 07/12 6,0	07 / 12	5,0	10,7	6,0	100
Sealing ring 09/12 7,0	09 / 12	5,5	13,3	7,0	100
Sealing ring 11/16 5,0	11 / 16	6,0	16,5	5,0	100
Sealing ring 13/20 7,0	13 / 20	6,0	18,3	7,0	100
Sealing ring 11/16 9,0	11 / 16	6,0	16,5	9,0	100
Sealing ring 13/20 11,0	13 / 20	6,0	18,3	11,0	100
Sealing ring 16/25 13,0	16 / 25	7,0	20,4	13,0	100
Sealing ring 21/25 16,0	21 / 25	8,0	25,9	16,0	100
Sealing ring 29/32 20,0	29 / 32	9,5	34,7	20,0	100
Sealing ring 29/32 25,0	29 / 32	9,5	34,7	25,0	100
Sealing ring 36/50 32,0	36 / 50	12,0	44,7	32,0	100
Sealing ring 42/50 40,0	42 / 50	14,0	51,7	40,0	100
Sealing ring 48/63 46,0	48 / 63	14,0	56,9	46,0	100

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## O-rings, metric

Material : Nitrile rubber NBR  
 Temperature range : -30 °C up to +100 °C  
 Comment : Assembled O-ring enables higher protection grades

Properties :  
 • For improved sealing on the connecting thread  
 • Ozone tested

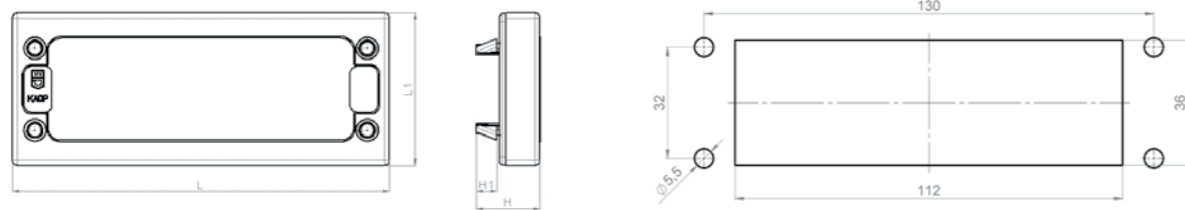


Typenr.	Size	Thickness (mm)	Da (mm)	Di (mm)	Packing (pcs)
M12 O-ring	M12	1,5	12,0	9,0	100
M16 O-ring	M16	1,5	16,0	13,0	100
M20 O-ring	M20	1,5	21,0	18,0	100
M25 O-ring	M25	2,0	25,0	21,0	100
M32 O-ring	M32	2,5	34,0	29,0	100
M40 O-ring	M40	2,0	41,0	37,0	100
M50 O-ring	M50	2,5	52,0	47,0	100
M63 O-ring	M63	3,0	66,0	60,0	100

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request).  
 For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Cable entry plate KADP

- Elastomeric plate : EPDM conforms following automotive standards; : VW 2.8.1 G50, DBL 5556.10; DBL 5556.20; DBL 5556.21; : ozone resistant according DIN 53509, level 0 (best level)
- Sealing : TPE
- Properties**
- Technology : Tool-free connection technology for cabling of : machines and equipment
- Application : For introduction of cables, hoses, pneumatic and : hydraulic lines
- Temperature range : -30 °C up to +100 °C
- Protection grade : IP66
- Overall dimension : L = 147,5 mm, L1 = 59,5 mm, : H = 25 mm, H1 = 8,2 mm
- UL / CSA-File : E140310

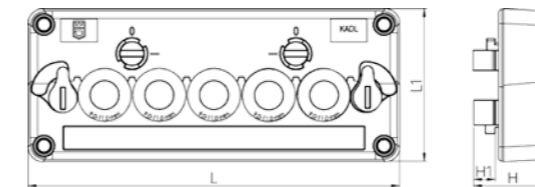


Typenr.	Number of entries on the cable entry plate suitable for cable diameter											Packing (pcs)
	1,5 - 2,6 mm	2,5 - 5,0 mm	3,0 - 5,5 mm	3,0 - 6,5 mm	4,1 - 8,1 mm	5,0 - 9,2 mm	8,0 - 12,0 mm	8,0 - 12,5 mm	9,0 - 14,0 mm	9,6 - 15,9 mm	14,0 - 20,0 mm	
KADP 24/11				4		4					3	1
KADP 24/12							12					1
KADP 24/13			2		6				4		1	1
KADP 24/14				6		4				4		1
KADP 24/17							17					1
KADP 24/17-1				11	1			5				1
KADP 24/22				16		4		2				1
KADP 24/23						23						1
KADP 24/29				29								1
KADP 24/BLI												1

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Cable entry plate KADL

- Frames : Polyamide PA6 V-0 (for high demands concerning fire safety)
- Sealing : TPE
- Properties**
- Technology : Tool-free entry and connection technology for : machines and equipment
- Application : Insertion and sealing of pre-assembled cables with : connectors into housings
- Benefits : Modular design and high packaging density, : individual selection of grommets (Series F311-9xxx-zz), : grommet clamping range to 2 mm, : strain relief for cables, : easy retrofits and adjustments, : extensions with additional frame parts : (Series F312-9xxx-zz)
- Variants of grommets : Order as accessory from series F311-9xxx-zz, : 7 small grommets for cables ØC = 3,0 - 16,5 mm, : 1 small grommet closed
- Mounting : Mounting in wall thicknesses from 1,5 to 2,0 mm, : for walls with thicknesses larger than 2,0 mm the KADL : can be attached
- Temperature range : -30 °C up to +100 °C
- Protection grade : IP54 / IP65



Typenr.	Frame set without grommets					Accessories Grommet small (pieces)	Packing (pcs)
	Hole size (mm)	L (mm)	L1 (mm)	H (mm)	H1 (mm)		
KADL 5K	125 x 35,0	153	63,0	30,3	8,3	5	1
KADL 10K	125 x 57,5	153	85,5	30,3	8,3	10	1
KADL 15K	125 x 80,0	153	108,0	30,3	8,3	15	1
KADL 20K	125 x 102,5	153	130,5	30,3	8,3	20	1
KADL 25K	125 x 125,0	153	153,0	30,3	8,3	25	1

In addition to our standard range of cable glands and accessories, we can also supply all other Jacob products (on request). For this, we refer you to the website of Jacob GmbH: [www.jacob-gmbh.de/en/](http://www.jacob-gmbh.de/en/)

## Junction box 1 - FK70 - IP54 - 400 V

Dimensions	: 77 x 75 x 42 mm
Suitable for cables of	: 2,5 mm <sup>2</sup>
Suitable for cable glands	: M16 and M20
	: 7 flexible cable entries
Nominal voltage	: 400 V
Protection grade	: IP-54
Certification	: OVE
Material box	: PE-flame retardant
Material cover	: PP-flame retardant
Color	: Grey



## Junction box 2 - FK75 - IP54 - 690 V

Dimensions	: 88 x 88 x 42 mm
Suitable for cables till	: 4,0 mm <sup>2</sup>
Suitable for cable gland	: M20
	: 7 flexible cable entries
	: M20 thread is present in each cable entry
Nominal voltage	: 690 V
Protection grade	: IP-54
Certification	: OVE
Material	: PP-flame retardant
Color	: Grey

## Junction box 3 - FK80 - IP54 - 690 V

Dimensions	: 93 x 90 x 48 mm
Suitable for cables till	: 4,0 mm <sup>2</sup>
Suitable for cable gland	: M20
	: 12 flexible cable entries
Nominal voltage	: 690 V
Protection grade	: IP-54
Certification	: OVE
Material box	: PE-flame retardant
Material cover	: PP-flame retardant
Color	: Grey

## Junction box 5 - With 4 cable glands PG16 - IP54 - 400 V

Dimensions	: 80 x 80 x 45 mm
Suitable for cables till	: 4,0 mm <sup>2</sup>
Suitable for cable gland	: PG16
	: 7 flexible cable entries
	: Will be delivered with 4 cable glands PG16
Nominal voltage	: 400 V
Protection grade	: IP-54
Certification	: Kema quality mark
Material	: PE-flame retardant
Color	: Grey



## Junction box 6 - With 4 grommets PG16 - IP54 - 400 V

Dimensions	: 80 x 80 x 45 mm
Suitable for cables till	: 4,0 mm <sup>2</sup>
Suitable for cable gland	: PG16
	: 7 flexible cable entries
	: Will be delivered with 4 grommets
Nominal voltage	: 400 V
Protection grade	: IP-54
Certification	: Kema quality mark
Material	: PE-flame retardant
Color	: Grey

## Junction box 9 - FD10 - IP54 - 400 V

Dimensions	: 93 x 43 x 42 mm
Suitable for cables of	: 2,5 mm <sup>2</sup>
Suitable for cable glands	: M16 and M20
	: 10 flexible cable entries
Nominal voltage	: 400 V
Protection grade	: IP-54
Certification	: OVE
Material box	: PE-flame retardant
Material cover	: PP-flame retardant
Color	: Grey





## TERMINALS



## PVC insulated ring terminals

Maximum electrical rating : 600 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Copper

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Hole (mm)	AWG	Length (mm)	Packing (pcs)
R 3.2 r	Red	0,5 ~ 1,5	3,2	22 ~ 16	18,0	100
R 3.7 r	Red	0,5 ~ 1,5	3,7	22 ~ 16	19,9	100
R 4.3 r	Red	0,5 ~ 1,5	4,3	22 ~ 16	19,9	100
R 5.3 r	Red	0,5 ~ 1,5	5,3	22 ~ 16	21,3	100
R 6.4 r	Red	0,5 ~ 1,5	6,4	22 ~ 16	27,3	100
R 8.4 r	Red	0,5 ~ 1,5	8,4	22 ~ 16	27,3	100
R 10.5 r	Red	0,5 ~ 1,5	10,5	22 ~ 16	31,0	100
R 3.7 b	Blue	1,5 ~ 2,5	3,7	16 ~ 14	19,9	100
R 4.3 b	Blue	1,5 ~ 2,5	4,3	16 ~ 14	22,3	100
R 5.3 b	Blue	1,5 ~ 2,5	5,3	16 ~ 14	22,3	100
R 6.4 b	Blue	1,5 ~ 2,5	6,4	16 ~ 14	27,3	100
R 8.4 b	Blue	1,5 ~ 2,5	8,4	16 ~ 14	27,3	100
R 10.5 b	Blue	1,5 ~ 2,5	10,5	16 ~ 14	31,0	100
R 3.7 g	Yellow	4,0 ~ 6,0	3,7	12 ~ 10	23,2	100
R 4.3 g	Yellow	4,0 ~ 6,0	4,3	12 ~ 10	27,1	100
R 5.3 g	Yellow	4,0 ~ 6,0	5,3	12 ~ 10	27,1	100
R 6.4 g	Yellow	4,0 ~ 6,0	6,4	12 ~ 10	30,0	100
R 8.4 g	Yellow	4,0 ~ 6,0	8,4	12 ~ 10	34,5	100
R 10.5 g	Yellow	4,0 ~ 6,0	10,5	12 ~ 10	34,5	100

## PVC insulated spade terminals

Maximum electrical rating : 600 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Copper

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Groove (mm)	AWG	Length (mm)	Packing (pcs)
V 3.2 r	Red	0,5 ~ 1,5	3,2	22 ~ 16	21,0	100
V 3.7 r	Red	0,5 ~ 1,5	3,7	22 ~ 16	20,6	100
V 4.3 r	Red	0,5 ~ 1,5	4,3	22 ~ 16	20,6	100
V 5.3 r	Red	0,5 ~ 1,5	5,3	22 ~ 16	21,0	100
V 6.4 r	Red	0,5 ~ 1,5	6,5	22 ~ 16	27,2	100
V 3.7 b	Blue	1,5 ~ 2,5	3,7	16 ~ 14	21,0	100
V 4.3 b	Blue	1,5 ~ 2,5	4,3	16 ~ 14	21,0	100
V 5.3 b	Blue	1,5 ~ 2,5	5,3	16 ~ 14	22,0	100
V 6.4 b	Blue	1,5 ~ 2,5	6,5	16 ~ 14	27,2	100
V 8.4 b	Blue	1,5 ~ 2,5	8,4	16 ~ 14	27,2	100
V 3.7 g	Yellow	4,0 ~ 6,0	3,7	12 ~ 10	25,2	100
V 4.3 g	Yellow	4,0 ~ 6,0	4,3	12 ~ 10	25,2	100
V 5.3 g	Yellow	4,0 ~ 6,0	5,3	12 ~ 10	25,2	100
V 6.4 g	Yellow	4,0 ~ 6,0	6,5	12 ~ 10	31,2	100

## PVC insulated female disconnectors

Maximum electrical rating : 300 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Tab (mm)	AWG	Packing (pcs)
Con vh 2.8 rs	Red	0,5 ~ 1,5	0,5 * 2,8	22 ~ 16	100
Con vh 2.8 r	Red	0,5 ~ 1,5	0,8 * 2,8	22 ~ 16	100
Con vh 4.8 rs	Red	0,5 ~ 1,5	0,5 * 4,8	22 ~ 16	100
Con vh 4.8 r	Red	0,5 ~ 1,5	0,8 * 4,8	22 ~ 16	100
Con vh 6.3 r	Red	0,5 ~ 1,5	0,8 * 6,4	22 ~ 16	100
Con vh 2.8 bs	Blue	1,5 ~ 2,5	0,5 * 2,8	16 ~ 14	100
Con vh 2.8 b	Blue	1,5 ~ 2,5	0,8 * 2,8	16 ~ 14	100
Con vh 4.8 bs	Blue	1,5 ~ 2,5	0,5 * 4,8	16 ~ 14	100
Con vh 4.8 b	Blue	1,5 ~ 2,5	0,8 * 4,8	16 ~ 14	100
Con vh 6.3 b	Blue	1,5 ~ 2,5	0,8 * 6,4	16 ~ 14	100
Con vh 6.3 g	Yellow	4,0 ~ 6,0	0,8 * 6,8	12 ~ 10	100

## PVC fully insulated female disconnectors

Maximum electrical rating : 300 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Tab (mm)	AWG	Packing (pcs)
Con vv 2.8 rs	Red	0,5 ~ 1,5	0,5 * 2,8	22 ~ 16	100
Con vv 2.8 r	Red	0,5 ~ 1,5	0,8 * 2,8	22 ~ 16	100
Con vv 4.8 rs	Red	0,5 ~ 1,5	0,5 * 4,8	22 ~ 16	100
Con vv 4.8 r	Red	0,5 ~ 1,5	0,8 * 4,8	22 ~ 16	100
Con vv 6.3 r	Red	0,5 ~ 1,5	0,8 * 6,4	22 ~ 16	100
Con vv 2.8 bs	Blue	1,5 ~ 2,5	0,5 * 2,8	16 ~ 14	100
Con vv 2.8 b	Blue	1,5 ~ 2,5	0,8 * 2,8	16 ~ 14	100
Con vv 4.8 bs	Blue	1,5 ~ 2,5	0,5 * 4,8	16 ~ 14	100
Con vv 4.8 b	Blue	1,5 ~ 2,5	0,8 * 4,8	16 ~ 14	100
Con vv 6.3 b	Blue	1,5 ~ 2,5	0,8 * 6,4	16 ~ 14	100
Con vv 6.3 g	Yellow	4,0 ~ 6,0	0,8 * 6,4	12 ~ 10	100

## PVC insulated piggy-back connectors

Maximum electrical rating : 300 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

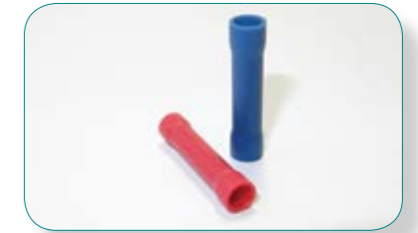
Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Tab (mm)	AWG	Packing (pcs)
Con dh 6.3 r	Red	0,5 ~ 1,5	0,8 * 6,4	22 ~ 16	100
Con dh 6.3 b	Blue	1,5 ~ 2,5	0,8 * 6,4	16 ~ 14	100
Con dh 6.3 g	Yellow	4,0 ~ 6,0	0,8 * 6,4	12 ~ 10	100

## PVC insulated butt connectors

Maximum electrical rating : 600 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Copper



Typenr.	Color	Wire range (mm <sup>2</sup> )	Length (mm)	AWG	Packing (pcs)
Ver 1.25 r	Red	0,5 ~ 1,5	26,0	22 ~ 16	100
Ver 2 b	Blue	1,5 ~ 2,5	26,0	16 ~ 14	100
Ver 5.5 g	Yellow	4,0 ~ 6,0	26,0	12 ~ 10	100

## PVC insulated male disconnectors

Maximum electrical rating : 300 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Tab (mm)	AWG	Packing (pcs)
Con mh 2.8 rs	Red	0,5 ~ 1,5	0,5 * 2,8	22 ~ 16	100
Con mh 2.8 r	Red	0,5 ~ 1,5	0,8 * 2,8	22 ~ 16	100
Con mh 4.8 rs	Red	0,5 ~ 1,5	0,5 * 4,8	22 ~ 16	100
Con mh 4.8 r	Red	0,5 ~ 1,5	0,8 * 4,8	22 ~ 16	100
Con mh 6.3 r	Red	0,5 ~ 1,5	0,8 * 6,4	22 ~ 16	100
Con mh 2.8 bs	Blue	1,5 ~ 2,5	0,5 * 2,8	16 ~ 14	100
Con mh 2.8 b	Blue	1,5 ~ 2,5	0,8 * 2,8	16 ~ 14	100
Con mh 4.8 bs	Blue	1,5 ~ 2,5	0,5 * 4,8	16 ~ 14	100
Con mh 4.8 b	Blue	1,5 ~ 2,5	0,8 * 4,8	16 ~ 14	100
Con mh 6.3 b	Blue	1,5 ~ 2,5	0,8 * 6,4	16 ~ 14	100
Con mh 6.3 g	Yellow	4,0 ~ 6,0	0,8 * 6,4	12 ~ 10	100

## Heat shrinkable butt connectors

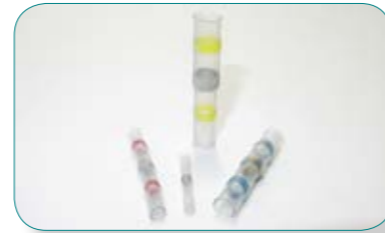
Properties : 100% waterproof with heat shrinkable tubing  
 Temperature range : -55 °C up to +125 °C  
 Shrink temperature : +60 °C up to +100 °C  
 Insulation material : Nylon  
 Certification : RoHS



Typenr.	Color	Wire range (mm <sup>2</sup> )	Length (mm)	AWG	Packing (pcs)
Ver 1.25 r heat shrink	Red	0,5 ~ 1,5	35,0	22 ~ 16	100
Ver 2 b heat shrink	Blue	1,5 ~ 2,5	35,0	16 ~ 14	100
Ver 5.5 g heat shrink	Yellow	4,0 ~ 6,0	41,0	12 ~ 10	100

## Solder butt connectors

Shrink ratio : 3:1  
 Temperature range : -55 °C up to +125 °C  
 Shrink temperature : > +140 °C  
 Insulation material : Polyolefin



Typenr.	Color	Wire range (mm <sup>2</sup> )	Length (mm)	Packing (pcs)
Solder 0.3 - 0.8 transp.	Transparent	0,3 ~ 0,8	26,0	100
Solder 0.8 - 2.0 red	Red	0,8 ~ 2,0	42,0	100
Solder 2.0 - 4.0 blue	Blue	2,0 ~ 4,0	42,0	100
Solder 4.0 - 6.0 yellow	Yellow	4,0 ~ 6,0	42,0	100

## PVC fully insulated receptacle disconnectors

Maximum electrical rating : 300 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Diameter connector (mm)	AWG	Packing (pcs)
Kog v 4 r	Red	0,5 ~ 1,5	4,0	22 ~ 16	100
Kog v 4 b	Blue	1,5 ~ 2,5	4,0	16 ~ 14	100
Kog v 5 b	Blue	1,5 ~ 2,5	5,0	16 ~ 14	100
Kog v 5 g	Yellow	4,0 ~ 6,0	5,0	12 ~ 10	100

## PVC insulated bullet disconnectors

Maximum electrical rating : 300 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

Also available without sleeve and with "easy entry"



Typenr.	Color	Wire range (mm <sup>2</sup> )	Diameter connector (mm)	AWG	Packing (pcs)
Kog m 4 r	Red	0,5 ~ 1,5	4,0	22 ~ 16	100
Kog m 4 b	Blue	1,5 ~ 2,5	4,0	16 ~ 14	100
Kog m 5 b	Blue	1,5 ~ 2,5	5,0	16 ~ 14	100
Kog m 5 g	Yellow	4,0 ~ 6,0	5,0	12 ~ 10	100

## PVC insulated pin terminals

Maximum electrical rating : 600 V max.  
 Maximum temperature : 75 °C  
 Insulation material : PVC  
 Terminal material : Brass

Also available without sleeve and with "easy entry"

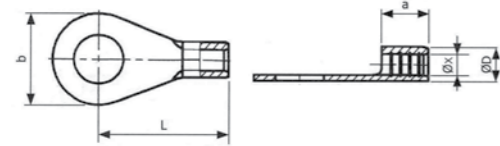


Typenr.	Color	Wire range (mm <sup>2</sup> )	AWG	Length (mm)	Packing (pcs)
Pin r	Red	0,5 ~ 1,5	22 ~ 16	22,5	100
Pin b	Blue	1,5 ~ 2,5	16 ~ 14	22,5	100
Pin g	Yellow	4,0 ~ 6,0	12 ~ 10	26,2	100

## Non insulated DIN 46234 terminals

Material : Copper  
 Certification : DIN 46234

On request: 95 mm<sup>2</sup>, 120 mm<sup>2</sup>, 150 mm<sup>2</sup>, 185 mm<sup>2</sup> and 240 mm<sup>2</sup>



<sup>1</sup> = Does not meet the DIN standards



Typenr.	Wire range (mm <sup>2</sup> )	AWG	Hole diameter (mm)	X (mm)	D (mm)	b (mm)	L (mm)	a (mm)	Packing (pcs)
PKQ 15.03	0,5 ~ 1,5	22 ~ 16	3,0	1,6	3,2	6,0	11,0	5,0	100
PKQ 15.04	0,5 ~ 1,5	22 ~ 16	4,0	1,6	3,2	8,0	12,0	5,0	100
PKQ 15.05	0,5 ~ 1,5	22 ~ 16	5,0	1,6	3,2	10,0	13,0	5,0	100
PKQ 15.06 <sup>1</sup>	0,5 ~ 1,5	22 ~ 16	6,0	1,6	3,2	10,0	13,0	5,0	100
PKQ 15.08 <sup>1</sup>	0,5 ~ 1,5	22 ~ 16	8,0	1,6	3,2	14,0	17,0	5,0	100
PKQ 15.10 <sup>1</sup>	0,5 ~ 1,5	22 ~ 16	10,0	1,6	3,2	14,0	17,0	5,0	100
PKQ 25.03	1,5 ~ 2,5	16 ~ 14	3,0	2,3	3,9	6,0	11,0	5,0	100
PKQ 25.04	1,5 ~ 2,5	16 ~ 14	4,0	2,3	3,9	8,0	12,0	5,0	100
PKQ 25.05	1,5 ~ 2,5	16 ~ 14	5,0	2,3	3,9	10,0	14,0	5,0	100
PKQ 25.06	1,5 ~ 2,5	16 ~ 14	6,0	2,3	3,9	11,0	16,0	5,0	100
PKQ 25.08	1,5 ~ 2,5	16 ~ 14	8,0	2,3	3,9	14,0	17,0	5,0	100
PKQ 25.10 <sup>1</sup>	1,5 ~ 2,5	16 ~ 14	10,0	2,3	3,9	18,0	18,0	5,0	100
PKQ 25.12 <sup>1</sup>	1,5 ~ 2,5	16 ~ 14	12,0	2,3	3,9	18,0	18,0	5,0	100
PKQ 60.04	4,0 ~ 6,0	12 ~ 10	4,0	3,6	5,6	8,0	14,0	6,0	100
PKQ 60.05	4,0 ~ 6,0	12 ~ 10	5,0	3,6	5,6	10,0	15,0	6,0	100
PKQ 60.06	4,0 ~ 6,0	12 ~ 10	6,0	3,6	5,6	11,0	16,0	6,0	100
PKQ 60.08	4,0 ~ 6,0	12 ~ 10	8,0	3,6	5,6	14,0	19,0	6,0	100
PKQ 60.10	4,0 ~ 6,0	12 ~ 10	10,0	3,6	5,6	18,0	21,0	6,0	100
PKQ 60.12 <sup>1</sup>	4,0 ~ 6,0	12 ~ 10	12,0	3,6	5,6	18,0	21,0	6,0	100
PKQ 100.05	10,0	8	5,0	4,5	6,7	10,0	16,0	8,0	100
PKQ 100.06	10,0	8	6,0	4,5	6,7	11,0	17,0	8,0	100
PKQ 100.08	10,0	8	8,0	4,5	6,7	14,0	20,0	8,0	100
PKQ 100.10	10,0	8	10,0	4,5	6,7	18,0	21,0	8,0	100
PKQ 100.12	10,0	8	12,0	4,5	6,7	22,0	23,0	8,0	100

Typenr.	Wire range (mm <sup>2</sup> )	AWG	Hole diameter (mm)	X (mm)	D (mm)	b (mm)	L (mm)	a (mm)	Packing (pcs)
PKQ 160.05	16,0	6	5,0	5,8	8,2	11,0	20,0	10,0	100
PKQ 160.06	16,0	6	6,0	5,8	8,2	11,0	20,0	10,0	100
PKQ 160.08	16,0	6	8,0	5,8	8,2	18,0	24,0	10,0	100
PKQ 160.10	16,0	6	10,0	5,8	8,2	18,0	24,0	10,0	100
PKQ 160.12	16,0	6	12,0	5,8	8,2	22,0	26,0	10,0	100
PKQ 250.05	25,0	4	5,0	7,5	10,5	12,0	25,0	11,0	100
PKQ 250.06	25,0	4	6,0	7,5	10,5	12,0	25,0	11,0	100
PKQ 250.08	25,0	4	8,0	7,5	10,5	16,0	25,0	11,0	100
PKQ 250.10	25,0	4	10,0	7,5	10,5	18,0	26,0	11,0	100
PKQ 250.12	25,0	4	12,0	7,5	10,5	22,0	31,0	11,0	100
PKQ 250.16	25,0	4	16,0	7,5	10,5	28,0	35,0	11,0	100
PKQ 350.06	35,0	2	6,0	9,0	12,2	15,0	26,0	12,0	100
PKQ 350.08	35,0	2	8,0	9,0	12,2	16,0	26,0	12,0	100
PKQ 350.10	35,0	2	10,0	9,0	12,2	18,0	27,0	12,0	100
PKQ 350.12	35,0	2	12,0	9,0	12,2	22,0	31,0	12,0	100
PKQ 350.16	35,0	2	16,0	9,0	12,2	28,0	36,0	12,0	100
PKQ 500.06	50,0	1/0	6,0	11,0	14,6	18,0	34,0	16,0	100
PKQ 500.08	50,0	1/0	8,0	11,0	14,6	18,0	34,0	16,0	100
PKQ 500.10	50,0	1/0	10,0	11,0	14,6	18,0	34,0	16,0	100
PKQ 500.12	50,0	1/0	12,0	11,0	14,6	22,0	36,0	16,0	100
PKQ 500.16	50,0	1/0	16,0	11,0	14,6	28,0	40,0	16,0	100
PKQ 700.06	70,0	2/0	6,0	13,0	17,0	22,0	36,0	18,0	100
PKQ 700.08	70,0	2/0	8,0	13,0	17,0	22,0	38,0	18,0	100
PKQ 700.10	70,0	2/0	10,0	13,0	17,0	22,0	38,0	18,0	100
PKQ 700.12	70,0	2/0	12,0	13,0	17,0	22,0	38,0	18,0	100
PKQ 700.16	70,0	2/0	16,0	13,0	17,0	28,0	42,0	18,0	100

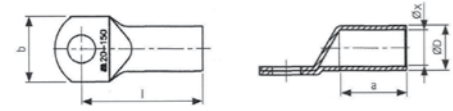
For other types, please see the following page



## Non insulated terminals

Material : Copper

On request: 185 mm<sup>2</sup>, 240 mm<sup>2</sup> and 300 mm<sup>2</sup>



Typenr.	Wire range (mm <sup>2</sup> )	AWG	Hole diameter (mm)	X (mm)	D (mm)	a (mm)	l (mm)	b (mm)	Packing (pcs)
PKK 60.05	6,0	10	5,0	3,6	5,6	9,0	21,0	11,5	100
PKK 60.06	6,0	10	6,0	3,6	5,6	9,0	21,0	11,5	100
PKK 60.08	6,0	10	8,0	3,6	5,6	9,0	23,0	13,0	100
PKK 60.10	6,0	10	10,0	3,6	5,6	9,0	25,0	16,0	100
PKK 100.05	10,0	8	5,0	4,5	7,0	10,0	21,0	12,0	100
PKK 100.06	10,0	8	6,0	4,5	7,0	10,0	21,5	12,0	100
PKK 100.08	10,0	8	8,0	4,5	7,0	10,0	23,5	15,0	100
PKK 100.10	10,0	8	10,0	4,5	7,0	10,0	25,5	17,0	100
PKK 160.05	16,0	6	5,0	5,5	8,5	13,0	25,0	12,0	100
PKK 160.06	16,0	6	6,0	5,5	8,5	13,0	25,5	12,0	100
PKK 160.08	16,0	6	8,0	5,5	8,5	13,0	27,5	15,0	100
PKK 160.10	16,0	6	10,0	5,5	8,5	13,0	29,5	17,0	100
PKK 160.12	16,0	6	12,0	5,5	8,5	13,0	30,5	19,0	100
PKK 250.05	25,0	4	5,0	7,2	10,0	15,0	28,0	14,0	100
PKK 250.06	25,0	4	6,0	7,2	10,0	15,0	28,5	14,0	100
PKK 250.08	25,0	4	8,0	7,2	10,0	15,0	30,5	16,0	100
PKK 250.10	25,0	4	10,0	7,2	10,0	15,0	32,5	18,0	100
PKK 250.12	25,0	4	12,0	7,2	10,0	15,0	33,5	19,0	100
PKK 350.06	35,0	2	6,0	8,5	12,0	17,0	31,5	18,0	100
PKK 350.08	35,0	2	8,0	8,5	12,0	17,0	33,5	18,0	100
PKK 350.10	35,0	2	10,0	8,5	12,0	17,0	35,5	18,0	100
PKK 350.12	35,0	2	12,0	8,5	12,0	17,0	36,5	20,0	100

Typenr.	Wire range (mm <sup>2</sup> )	AWG	Hole diameter (mm)	X (mm)	D (mm)	a (mm)	l (mm)	b (mm)	Packing (pcs)
PKK 500.06	50,0	1/0	6,0	10,2	14,0	19,0	34,5	20,0	100
PKK 500.08	50,0	1/0	8,0	10,2	14,0	19,0	36,5	20,0	100
PKK 500.10	50,0	1/0	10,0	10,2	14,0	19,0	38,5	20,0	100
PKK 500.12	50,0	1/0	12,0	10,2	14,0	19,0	39,5	23,0	100
PKK 500.16	50,0	1/0	16,0	10,2	14,0	19,0	42,5	28,0	100
PKK 700.06	70,0	2/0	6,0	12,0	16,5	21,0	40,5	23,0	50
PKK 700.08	70,0	2/0	8,0	12,0	16,5	21,0	40,5	23,0	50
PKK 700.10	70,0	2/0	10,0	12,0	16,5	21,0	43,5	23,0	50
PKK 700.12	70,0	2/0	12,0	12,0	16,5	21,0	43,5	23,0	50
PKK 700.14	70,0	2/0	14,0	12,0	16,5	21,0	46,5	28,0	50
PKK 700.16	70,0	2/0	16,0	12,0	16,5	21,0	46,5	28,0	50
PKK 950.08	95,0	3/0	8,0	13,5	17,8	24,0	47,0	25,0	50
PKK 950.10	95,0	3/0	10,0	13,5	17,8	24,0	47,0	25,0	50
PKK 950.12	95,0	3/0	12,0	13,5	17,8	24,0	47,0	25,0	50
PKK 950.14	95,0	3/0	14,0	13,5	17,8	24,0	50,0	25,0	50
PKK 950.16	95,0	3/0	16,0	13,5	17,8	24,0	50,0	29,0	50
PKK 1200.08	120,0	4/0	8,0	15,0	19,5	26,0	50,0	29,0	30
PKK 1200.10	120,0	4/0	10,0	15,0	19,5	26,0	50,0	29,0	30
PKK 1200.12	120,0	4/0	12,0	15,0	19,5	26,0	50,0	29,0	30
PKK 1200.14	120,0	4/0	14,0	15,0	19,5	26,0	53,0	29,0	30
PKK 1200.16	120,0	4/0	16,0	15,0	19,5	26,0	53,0	29,0	30
PKK 1200.20	120,0	4/0	20,0	15,0	19,5	26,0	57,5	35,0	30
PKK 1500.10	150,0	5/0	10,0	16,5	20,8	29,0	54,0	31,0	10
PKK 1500.12	150,0	5/0	12,0	16,5	20,8	29,0	54,0	31,0	10
PKK 1500.16	150,0	5/0	16,0	16,5	20,8	29,0	57,0	31,0	10
PKK 1500.20	150,0	5/0	20,0	16,5	20,8	29,0	61,5	35,0	10

For other types, please see the following page

## Quick splice connectors single tab

Maximum electrical rating : 600 V max.  
 Maximum temperature : 105 °C  
 Insulation material : Nylon  
 Terminal material : Brass



Typenr.	Color	Wire range (mm <sup>2</sup> )	AWG	Length (mm)	Packing (pcs)
Quick r	Red	0,5 ~ 1,5	22 ~ 18	26,0	100
Quick b	Blue	1,5 ~ 2,5	16 ~ 14	26,0	100
Quick g	Yellow	4,0 ~ 6,0	12 ~ 10	32,8	100

## Fuseholders

Maximum electrical rating : 600 V max.  
 Maximum temperature : 75 °C  
 Insulation material : Polypropylene  
 Terminal material : Brass



Typenr.	Color	Wire range (mm <sup>2</sup> )	AWG	Length (mm)	Packing (pcs)
WK/2 fuse holder	Blue	1,5 ~ 2,5	16 ~ 14	34,0	200

## Tool 4 for terminals

Type : Tool T4 KS insulated 0,5 – 6,0 mm<sup>2</sup>  
 Material : Carbon steel  
 Use : For insulated terminals of 0,5 – 6,0 mm<sup>2</sup>  
 : Release of the tool when reaching the right pressure



## Tool 5 for terminals

Type : Tool T5 KS insulated 0,5 – 6,0 mm<sup>2</sup>  
 Material : Steel 3 / 16  
 Use : For insulated terminals of 0,5 – 6,0 mm<sup>2</sup>



## Assortments terminals

### Assortment 1: terminals with tool 5 (261 pcs)

Terminal material : Brass  
 Insulation material : PVC  
 Maximum temperature : 75 °C  
 Maximum electrical rating : 300 V

#### Including:

Typenr.	Color	Quantity
Tool 5		1
Con vh 6.3 r	Red	25
Con vh 6.3 b	Blue	25
Con mh 6.3 r	Red	25
Con mh 6.3 b	Blue	25
Con dh 6.3 r	Red	25
Con dh 6.3 b	Blue	25
Ver 1.25 r	Red	25
Ver 2 b	Blue	25
R 5.3 r	Red	25
R 6.4 b	Blue	25
Quick r	Red	5
Quick b	Blue	5



### Assortment 2: heat shrinkable terminals (110 pcs)

Terminal material : Brass  
 Insulation material : Polyolefin  
 Shrink temperature : +150 °C  
 Temperature range : -10 °C up to +105 °C

#### Including:

Typenr.	Color	Quantity
Ver 1.25 r heat shrink	Red	20
Ver 2 b heat shrink	Blue	20
Ver 5.5 g heat shrink	Yellow	10
Con vh 6.3 r heat shrink	Red	10
Con vh 6.3 b heat shrink	Blue	10
Con mh 6.3 r heat shrink	Red	10
Con mh 6.3 b heat shrink	Blue	10
R 5.3 r heat shrink	Red	10
R 5.3 b heat shrink	Blue	10





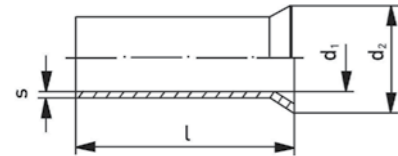


## CABLE END-SLEEVES

## Cable end-sleeves non-insulated

Material  
Minimum coating thickness  
Certification

: Copper  
: 3 µm  
: DIN 46228/1



Typenr.	Mm <sup>2</sup>	AWG	L (mm)	D1 (mm)	D2 (mm)	S (mm)	Packing (pcs)
Co 001407	0,14	26	7,00	0,65	1,60	0,15	1000
Co 002505	0,25	24	5,00	0,75	1,70	0,15	1000
Co 002507	0,25	24	7,00	0,75	1,70	0,15	1000
Co 003405	0,34	22	5,00	0,85	1,80	0,15	1000
Co 003407	0,34	22	7,00	0,85	1,80	0,15	1000
Co 005006	0,50	20	6,00	1,00	2,10	0,15	1000
Co 005008	0,50	20	8,00	1,00	2,10	0,15	1000
Co 005010	0,50	20	10,00	1,00	2,10	0,15	1000
Co 005012	0,50	20	12,00	1,00	2,10	0,15	1000
Co 007506	0,75	18	6,00	1,20	2,30	0,15	1000
Co 007508	0,75	18	8,00	1,20	2,30	0,15	1000
Co 007510	0,75	18	10,00	1,20	2,30	0,15	1000
Co 007512	0,75	18	12,00	1,20	2,30	0,15	1000
Co 007515	0,75	18	15,00	1,20	2,30	0,15	1000
Co 010006	1,00	18	6,00	1,40	2,50	0,15	1000
Co 010007	1,00	18	7,00	1,40	2,50	0,15	1000
Co 010008	1,00	18	8,00	1,40	2,50	0,15	1000
Co 010010	1,00	18	10,00	1,40	2,50	0,15	1000
Co 010012	1,00	18	12,00	1,40	2,50	0,15	1000
Co 010015	1,00	18	15,00	1,40	2,50	0,15	1000
Co 015006	1,50	16	6,00	1,70	2,80	0,15	1000
Co 015007	1,50	16	7,00	1,70	2,80	0,15	1000
Co 015008	1,50	16	8,00	1,70	2,80	0,15	1000
Co 015010	1,50	16	10,00	1,70	2,80	0,15	1000
Co 015012	1,50	16	12,00	1,70	2,80	0,15	1000
Co 015015	1,50	16	15,00	1,70	2,80	0,15	1000
Co 015018	1,50	16	18,00	1,70	2,80	0,15	1000
Co 015020	1,50	16	20,00	1,70	2,80	0,15	1000

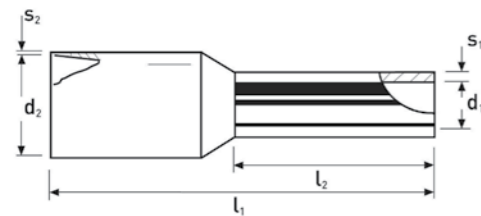
Typenr.	Mm <sup>2</sup>	AWG	L (mm)	D1 (mm)	D2 (mm)	S (mm)	Packing (pcs)
Co 025007	2,50	14	7,00	2,20	3,40	0,15	1000
Co 025008	2,50	14	8,00	2,20	3,40	0,15	1000
Co 025010	2,50	14	10,00	2,20	3,40	0,15	1000
Co 025012	2,50	14	12,00	2,20	3,40	0,15	1000
Co 025015	2,50	14	15,00	2,20	3,40	0,15	1000
Co 025018	2,50	14	18,00	2,20	3,40	0,15	1000
Co 025020	2,50	14	20,00	2,20	3,40	0,15	1000
Co 040009	4,00	12	9,00	2,80	4,00	0,20	1000
Co 040010	4,00	12	10,00	2,80	4,00	0,20	1000
Co 040012	4,00	12	12,00	2,80	4,00	0,20	1000
Co 040015	4,00	12	15,00	2,80	4,00	0,20	1000
Co 040018	4,00	12	18,00	2,80	4,00	0,20	1000
Co 040020	4,00	12	20,00	2,80	4,00	0,20	1000
Co 060010	6,00	10	10,00	3,50	4,70	0,20	250
Co 060012	6,00	10	12,00	3,50	4,70	0,20	250
Co 060015	6,00	10	15,00	3,50	4,70	0,20	250
Co 060018	6,00	10	18,00	3,50	4,70	0,20	250
Co 060020	6,00	10	20,00	3,50	4,70	0,20	250
Co 100012	10,00	8	12,00	4,50	5,80	0,20	250
Co 100015	10,00	8	15,00	4,50	5,80	0,20	250
Co 100018	10,00	8	18,00	4,50	5,80	0,20	250
Co 100020	10,00	8	20,00	4,50	5,80	0,20	250
Co 100025	10,00	8	25,00	4,50	5,80	0,20	250
Co 160012	16,00	6	12,00	5,80	7,50	0,20	250
Co 160015	16,00	6	15,00	5,80	7,50	0,20	250
Co 160018	16,00	6	18,00	5,80	7,50	0,20	250
Co 160020	16,00	6	20,00	5,80	7,50	0,20	250
Co 160025	16,00	6	25,00	5,80	7,50	0,20	250
Co 160032	16,00	6	32,00	5,80	7,50	0,20	250

For other types, please see the following page



## Cable end-sleeves insulated

Material : Copper  
 Temperature range : Up to +105 °C  
 Minimum coating thickness : 3 µm  
 Certification : DIN 46228/4  
 Entry tunnel is made of Polypropylene



"T" type = Telemechanic  
 "W" type = Weidmüller  
 "D" type = DIN

Typenr.	Mm <sup>2</sup>	AWG	L1 (mm)	L2 (mm)	D1 (mm)	D2 (mm)	S1 (mm)	Color T	Color W	Color D	Packing (pcs)
Ce 001406	0,14	26	10,00	6,00	0,70	1,60	0,15	Brown	Grey	-	500
Ce 001408	0,14	26	12,00	8,00	0,70	1,60	0,15	Brown	Grey	-	500
Ce 002506	0,25	24	10,00	6,00	0,75	1,80	0,15	Yellow	Blue	Purple	500
Ce 002508	0,25	24	12,00	8,00	0,75	1,80	0,15	Yellow	Blue	Purple	500
Ce 003406	0,34	22	10,00	6,00	0,80	2,00	0,15	Green	Turquoise	Pink	500
Ce 003408	0,34	22	12,00	8,00	0,80	2,00	0,15	Green	Turquoise	Pink	500
Ce 005006	0,50	20	12,00	6,00	1,00	2,60	0,15	White	Orange	White	500
Ce 005008	0,50	20	14,00	8,00	1,00	2,60	0,15	White	Orange	White	500
Ce 005010	0,50	20	16,00	10,00	1,00	2,60	0,15	White	Orange	White	500
Ce 007506	0,75	18	12,00	6,00	1,20	2,80	0,15	Blue	White	Grey	500
Ce 007508	0,75	18	14,00	8,00	1,20	2,80	0,15	Blue	White	Grey	500
Ce 007510	0,75	18	16,00	10,00	1,20	2,80	0,15	Blue	White	Grey	500
Ce 007512	0,75	18	18,00	12,00	1,20	2,80	0,15	Blue	White	Grey	500
Ce 010006	1,00	18	12,00	6,00	1,40	3,00	0,15	Red	Yellow	Red	500
Ce 010008	1,00	18	14,00	8,00	1,40	3,00	0,15	Red	Yellow	Red	500
Ce 010010	1,00	18	16,00	10,00	1,40	3,00	0,15	Red	Yellow	Red	500
Ce 010012	1,00	18	18,00	12,00	1,40	3,00	0,15	Red	Yellow	Red	500
Ce 015006	1,50	16	12,00	6,00	1,70	3,50	0,15	Black	Red	Black	500
Ce 015008	1,50	16	14,00	8,00	1,70	3,50	0,15	Black	Red	Black	500
Ce 015010	1,50	16	16,00	10,00	1,70	3,50	0,15	Black	Red	Black	500
Ce 015012	1,50	16	18,00	12,00	1,70	3,50	0,15	Black	Red	Black	500
Ce 015018	1,50	16	24,00	18,00	1,70	3,50	0,15	Black	Red	Black	500
Ce 025008	2,50	14	14,00	8,00	2,20	4,20	0,15	Grey	Blue	Blue	500
Ce 025010	2,50	14	16,00	10,00	2,20	4,20	0,15	Grey	Blue	Blue	500
Ce 025012	2,50	14	18,00	12,00	2,20	4,20	0,15	Grey	Blue	Blue	500
Ce 025018	2,50	14	24,00	18,00	2,20	4,20	0,15	Grey	Blue	Blue	500

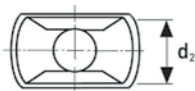
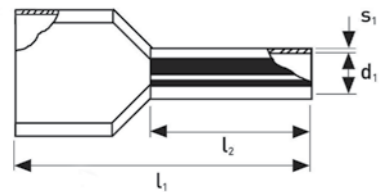
Typenr.	Mm <sup>2</sup>	AWG	L1 (mm)	L2 (mm)	D1 (mm)	D2 (mm)	S1 (mm)	Color T	Color W	Color D	Packing (pcs)
Ce 040010	4,00	12	17,00	10,00	2,80	4,80	0,20	Orange	Grey	Grey	500
Ce 040012	4,00	12	20,00	12,00	2,80	4,80	0,20	Orange	Grey	Grey	500
Ce 040018	4,00	12	26,00	18,00	2,80	4,80	0,20	Orange	Grey	Grey	500
Ce 060012	6,00	10	20,00	12,00	3,50	6,30	0,20	Green	Black	Yellow	100
Ce 060018	6,00	10	26,00	18,00	3,50	6,30	0,20	Green	Black	Yellow	100
Ce 100012	10,00	8	22,00	12,00	4,50	7,60	0,20	Brown	Cream	Red	100
Ce 100018	10,00	8	28,00	18,00	4,50	7,60	0,20	Brown	Cream	Red	100
Ce 160012	16,00	6	24,00	12,00	5,80	8,80	0,20	Cream	Green	Blue	100
Ce 160018	16,00	6	28,00	18,00	5,80	8,80	0,20	Cream	Green	Blue	100
Ce 250016	25,00	4	30,00	16,00	7,30	11,20	0,20	Black	Brown	Yellow	50
Ce 250018	25,00	4	30,00	18,00	7,30	11,20	0,20	Black	Brown	Yellow	50
Ce 250022	25,00	4	36,00	22,00	7,30	11,20	0,20	Black	Brown	Yellow	50
Ce 350016	35,00	2	30,00	16,00	8,30	12,70	0,20	Red	Cream	Red	50
Ce 350018	35,00	2	30,00	18,00	8,30	12,70	0,20	Red	Cream	Red	50
Ce 350025	35,00	2	39,00	25,00	8,30	12,70	0,20	Red	Cream	Red	50
Ce 500020	50,00	1	36,00	20,00	10,30	15,00	0,30	Blue	Olive	Blue	50
Ce 500025	50,00	1	40,00	25,00	10,30	15,00	0,30	Blue	Olive	Blue	50
Ce 700021	70,00	2/0	37,00	21,00	13,50	16,00	0,40	Yellow	Yellow	Yellow	25
Ce 950025	95,00	3/0	44,00	25,00	14,50	18,00	0,40	Red	Red	Red	25
Ce 1200027	120,00	4/0	48,00	27,00	16,50	20,00	0,45	Blue	Blue	Blue	25
Ce 1500032	150,00	300 MCM	58,00	32,00	19,50	23,00	0,50	Yellow	Yellow	Yellow	25

For other types, please see the following page



## Cable end-sleeves double "Twins"

Material : Copper  
 Temperature range : Up to +105 °C  
 Minimum coating thickness : 3 µm  
 Certification : DIN 46228/4  
 Entry tunnel is made of Polypropylene



"T" type = Telemecanic  
 "W" type = Weidmüller  
 "D" type = DIN

Typenr.	Mm <sup>2</sup>	AWG	L1 (mm)	L2 (mm)	D1 (mm)	D2 (mm)	S1 (mm)	Color T	Color W	Color D	Packing (pcs)
Ct 005008	0,50	2 x 20	15,00	8,00	1,40	2,50	0,15	White	Orange	White	500
Ct 007508	0,75	2 x 18	15,00	8,00	1,70	2,80	0,15	Blue	White	Grey	500
Ct 007510	0,75	2 x 18	17,00	10,00	1,70	2,80	0,15	Blue	White	Grey	500
Ct 010008	1,00	2 x 18	15,00	8,00	1,95	3,40	0,15	Red	Yellow	Red	500
Ct 010010	1,00	2 x 18	17,00	10,00	1,95	3,40	0,15	Red	Yellow	Red	500
Ct 015008	1,50	2 x 16	16,00	8,00	2,20	3,60	0,15	Black	Red	Black	500
Ct 025010	2,50	2 x 14	18,50	10,00	2,80	4,20	0,20	Grey	Blue	Blue	250
Ct 025013	2,50	2 x 14	21,50	13,00	2,80	4,20	0,20	Grey	Blue	Blue	250
Ct 040012	4,00	2 x 12	23,00	12,00	3,70	4,90	0,20	Orange	Grey	Grey	100
Ct 060014	6,00	2 x 10	26,00	14,00	4,80	6,90	0,20	Green	Black	Yellow	100
Ct 100014	10,00	2 x 8	26,00	14,00	6,40	7,20	0,20	Brown	Cream	Red	100
Ct 160014	16,00	2 x 6	30,00	14,00	8,20	9,60	0,20	Cream	Green	Blue	50



## Assortments cable end-sleeves

Material : Copper  
 Temperature range : Up to +105 °C  
 Minimum coating thickness : 3 µm  
 Certification : DIN 46228/4  
 Entry tunnel is made of Polypropylene

### Content assortment 1: cable end-sleeves insulated (400 pcs)

Typenr.	Quantity
0,50 mm <sup>2</sup> x 8 mm	50
0,75 mm <sup>2</sup> x 8 mm	100
1,00 mm <sup>2</sup> x 8 mm	100
1,50 mm <sup>2</sup> x 8 mm	100
2,50 mm <sup>2</sup> x 8 mm	50



### Content assortment 2: cable end-sleeves insulated (900 pcs)

Typenr.	Quantity
0,50 mm <sup>2</sup> x 8 mm	200
0,75 mm <sup>2</sup> x 8 mm	200
1,00 mm <sup>2</sup> x 8 mm	200
1,50 mm <sup>2</sup> x 8 mm	200
2,50 mm <sup>2</sup> x 8 mm	100



## Tool 9 for cable end-sleeves

Type : Tool T9 AD 0,5 - 2,5 mm<sup>2</sup>  
 Material : Steel 3 / 16  
 Use : For insulated and non-insulated cable end-sleeves of 0,5 - 2,5 mm<sup>2</sup>





**WKK: producer of fixation clips**

Through our subsidiary WKK Automotive, WKK has access to its own production facility for the development and production of plastic clips for the automotive industry and other markets such as the solar market. The clips are used for the fixation and guidance of cables in vehicles and on profiles.

WKK offers you an extensive range of fixation clips such as edge clips (also for corrugated tubing), clips with fir tree & with arrowhead and solar clips which are suitable for different profile thicknesses and hole diameters. We also offer you the opportunity to have clips custom made to meet your specific requirements.

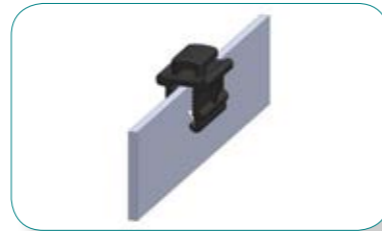
## FIXATION CLIPS

## Edge clips

Edge clips are an excellent solution for attachment of cables, wires and tubes on a plastic or metal profile. To choose the right type of edge clip, you should take into account the profile thickness and the way in which the cable will be mounted. WKK offers edge clips for different applications: with the cable tie fastening on top or on the side of the clip and by which the cable tie can be attached right-angled on or in longitudinal direction of the profile.

### Material specifications:

Clip : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant  
 Cable tie : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant  
 Temperature range : -40 °C to +120 °C (short time 140 °C)  
 Metal clamp : Spring steel, hardened surface  
 : The surface replies to the highest requirements for corrosion protection



### Types of edge clips for profile thickness 0,7 - 3,0 mm

Typenr.	Profile thickness in mm	Mounting of cable
KC1 *	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top of the clip</li> <li>• Cable tie right-angled on the profile</li> </ul>
KC2 *	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on the side of the clip</li> <li>• Cable tie right-angled on the profile</li> </ul>
KC3 *	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top of the clip</li> <li>• Cable tie in longitudinal direction of the profile</li> </ul>
KC5 *	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on the side of the clip</li> <li>• Cable tie in longitudinal direction of the profile</li> </ul>
KC15 *	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top and on the side of the clip</li> <li>• Cable tie can be mounted in 4 ways</li> </ul>
KC17-16036-CVUV **	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top of the clip</li> <li>• Cable tie right-angled on the profile</li> </ul>
KC18-16036-CVUV **	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on the side of the clip</li> <li>• Cable tie right-angled on the profile</li> </ul>
KC19-16036-CVUV **	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top of the clip</li> <li>• Cable tie in longitudinal direction of the profile</li> </ul>
KC20-16036-CVUV **	0,7 - 3,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on the side of the clip</li> <li>• Cable tie in longitudinal direction of the profile</li> </ul>
KC11	0,7 - 3,0	• With plug attachment
KC13	0,7 - 3,0	• With plug attachment

\* = Also available with cable tie: 200 x 4,8 mm (PA 6.6 / black)

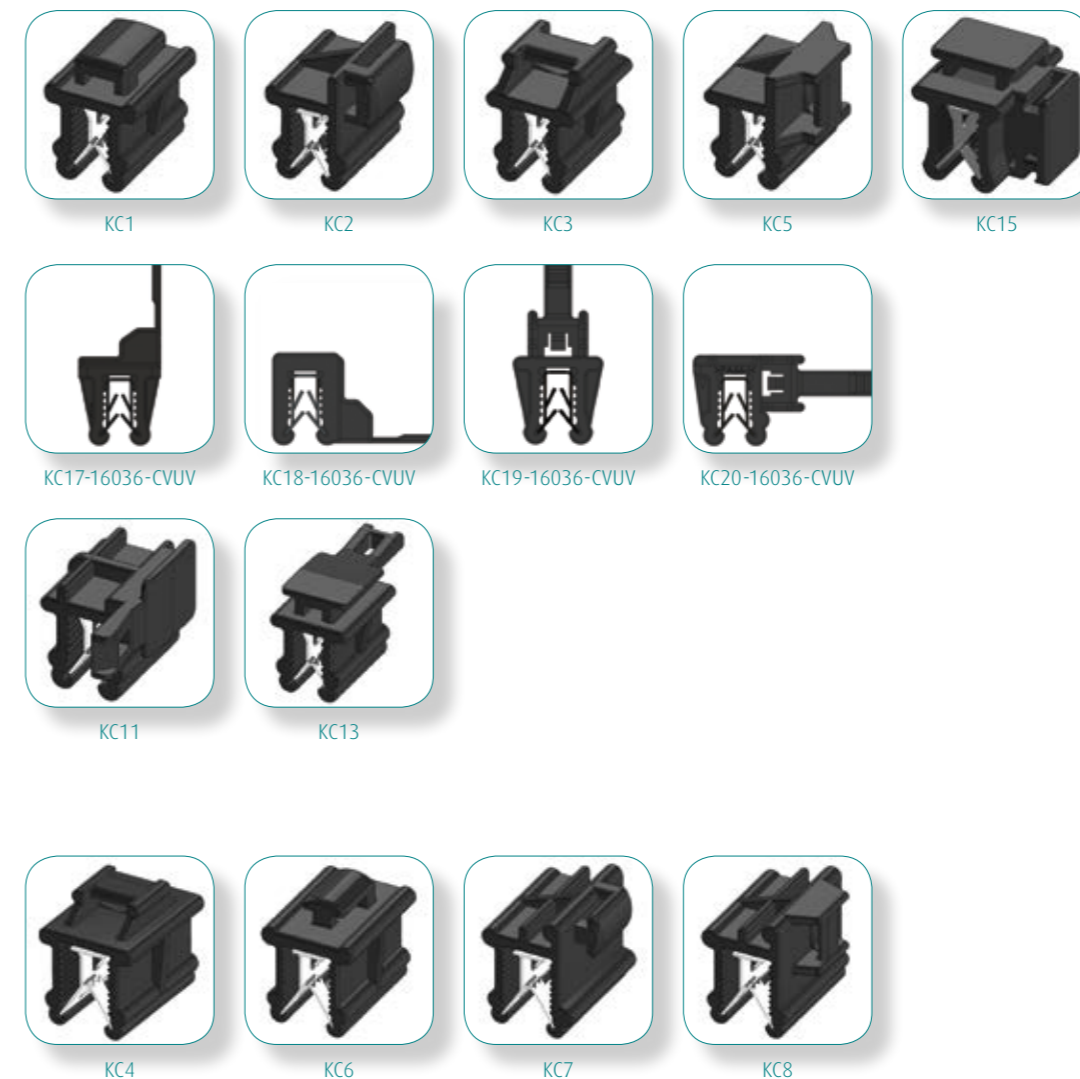
\*\* = Delivered with cable tie: 160 x 3,6 mm (PA 6.6 / black)

For other types, please see the following page

### Types of edge clips for profile thickness 3,0 - 6,0 mm

Typenr.	Profile thickness in mm	Mounting of cable
KC4 *	3,0 - 6,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top of the clip</li> <li>• Cable tie in longitudinal direction of the profile</li> </ul>
KC6 *	3,0 - 6,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on top of the clip</li> <li>• Cable tie right-angled on the profile</li> </ul>
KC7 *	3,0 - 6,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on the side of the clip</li> <li>• Cable tie right-angled on the profile</li> </ul>
KC8 *	3,0 - 6,0	<ul style="list-style-type: none"> <li>• Cable tie fastening on the side of the clip</li> <li>• Cable tie in longitudinal direction of the profile</li> </ul>

\* = Also available with cable tie: 200 x 4,8 mm (PA 6.6 / black)





## Edge clips for corrugated tubing

These edge clips are designed for guiding corrugated tubes on a plastic or metal profile. To choose the right type of edge clip for corrugated tubing, you should take into account the outer diameter of the corrugated tube, the profile thickness and the way in which the cable will be mounted.

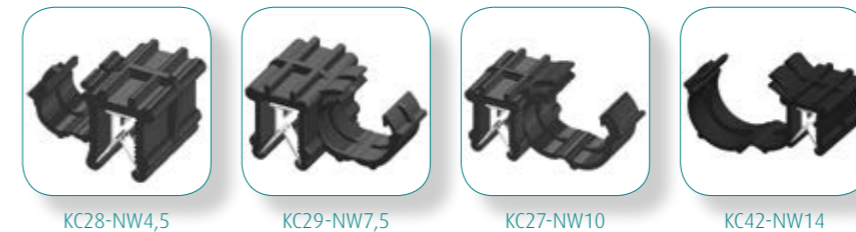
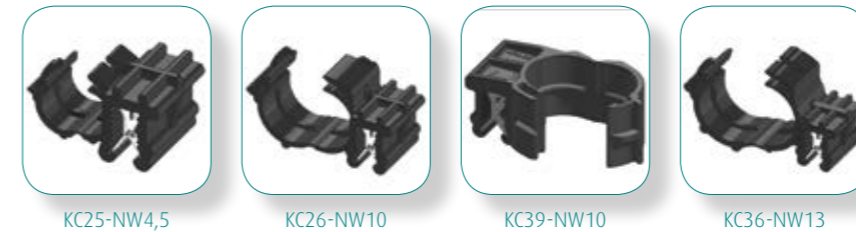
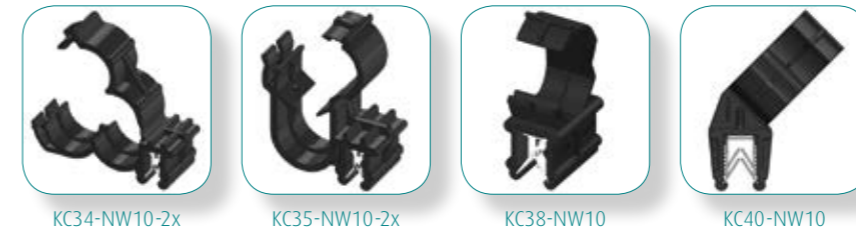
### Material specifications:

Clip : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant  
 Temperature range : -40 °C to +120 °C (short time 140 °C)  
 Metal clamp : Spring steel, hardened surface  
 : The surface replies to the highest requirements for corrosion protection



### Types of edge clips for corrugated tubing

Typenr.	Profile thickness in mm	Inside measure in mm	Mounting of cable
KC24-NW4,5	0,7 - 3,0	4,5	• Grip in longitudinal direction of the profile on top of the clip
KC21-NW7,5	0,7 - 3,0	7,5	• Grip in longitudinal direction of the profile on top of the clip
KC32-NW17	0,7 - 3,0	17,0	• Grip in longitudinal direction of the profile on top of the clip
KC30-NW4,5	3,0 - 6,0	4,5	• Grip in longitudinal direction of the profile on top of the clip
KC12-NW13	3,0 - 6,0	13,0	• Grip in longitudinal direction of the profile on top of the clip
KC23-NW4,5	0,7 - 3,0	4,5	• Grip right-angled on the profile on top of the clip
KC22-NW10	0,7 - 3,0	10,0	• Grip right-angled on the profile on top of the clip
KC31-NW13	0,7 - 3,0	13,0	• Grip right-angled on the profile on top of the clip
KC33-NW10-2x	0,7 - 3,0	2x 10,0	• Grip right-angled on the profile on top of the clip
KC34-NW10-2x	0,7 - 3,0	2x 10,0	• Grip right-angled on the profile on top of the clip
KC35-NW10-2x	0,7 - 3,0	2x 10,0	• Grip right-angled on the profile on top of the clip
KC38-NW10	3,0 - 6,0	10,0	• Grip right-angled on the profile on top of the clip
KC40-NW10	3,0 - 6,0	10,0	• Grip right-angled on the profile on top of the clip
KC25-NW4,5	0,7 - 3,0	4,5	• Grip in longitudinal direction of the profile on the side of the clip
KC26-NW10	0,7 - 3,0	10,0	• Grip in longitudinal direction of the profile on the side of the clip
KC39-NW10	0,7 - 3,0	10,0	• Grip in longitudinal direction of the profile on the side of the clip
KC36-NW13	0,7 - 3,0	13,0	• Grip in longitudinal direction of the profile on the side of the clip
KC28-NW4,5	3,0 - 6,0	4,5	• Grip in longitudinal direction of the profile on the side of the clip
KC29-NW7,5	3,0 - 6,0	7,5	• Grip in longitudinal direction of the profile on the side of the clip
KC27-NW10	3,0 - 6,0	10,0	• Grip in longitudinal direction of the profile on the side of the clip
KC42-NW14	3,0 - 6,0	14,0	• Grip in longitudinal direction of the profile on the side of the clip



## Clips with fir tree & with arrowhead

Clips with fir tree and clips with arrowhead are specially designed for mounting of the clip in a bore hole. To select the right type of clip, you should take into account the profile thickness and the diameter of the bore hole. WKK offers clips with fir tree by which the lamellae ensure a firm attachment in the bore hole. By this, the thickness of the profile may vary. WKK also offers clips with arrowhead by which the arrowhead ensures a solid attachment in the bore hole.

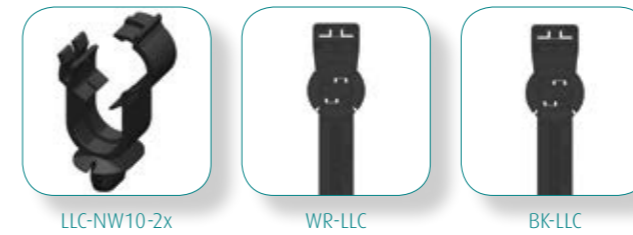
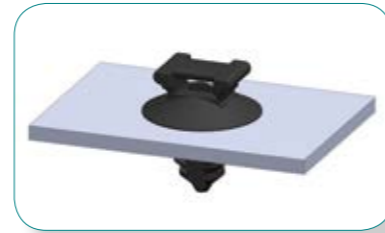
### Material specifications:

Clip : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant  
 Cable tie : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant  
 Temperature range : -40 °C to +120 °C (short time 140 °C)

### Types of clips with fir tree & with arrowhead

Typenr.	Hole diameter in mm	Sheet thickness in mm	Cable diameter in mm
LFC1 *	∅ 6,3 - 7,0	0,5 - 6,0	1,0 - 45,0
LFC2 *	∅ 6,3 - 7,0	0,5 - 3,0	1,0 - 45,0
LC1 *	∅ 6,5 ± 0,2	0,7 - 2,0	1,0 - 45,0
LC2 *	∅ 6,5 ± 0,2	2,0 - 3,5	1,0 - 45,0
LC3 *	∅ 6,5 - 7,0	1,8 - 2,8	1,0 - 45,0
LCD3	∅ 6,3 - 6,7	0,6 - 1,2	3,0 - 8,5
LFC6	∅ 6,3 - 7,0	0,7 - 6,0	4,5 - 6,0
FKH-LFC	∅ 6,3 - 6,7	0,5 - 4,5	
LLC-NW10-2x	∅ 6,2 - 12,2	2,0 - 3,0	2x 10,0
WR-LLC	∅ 6,3 - 12,3	0,7 - 3,0	4,5 - 30,0
BK-LLC	∅ 6,3 - 12,3	0,7 - 3,0	1,0 - 40,0

\* = Also available with cable tie: 200 x 4,8 mm (PA 6.6 / black)





## Solar clips

Solar clips are ideal for attachment of cables, wires and tubes on a profile. To choose the right type of solar clip, you need to take into account the dimensions of the profile. The types SC1 and SC2 can be mounted, in combination with a cable tie, in a M8 or M10 aluminium profile. The type of clip SKC1 can be mounted on a profile without a cable tie. This clip is designed for the attachment of two cables with a diameter of 6 mm.

### Material specifications:

- Clip : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant
- Cable tie : Polyamide 6.6 HS, black, impact resistant, heat resistant, UV resistant
- Temperature range : -40 °C to +120 °C (short time 140 °C)
- Metal clamp : Spring steel, hardened surface
- : The surface replies to the highest requirements for corrosion protection



### Types of solar clips

Typenr.	Mounting of clip	Mounting of cable
SKC1	· Profile thickness of 0,7 - 3,0 mm	· 2 x 6 mm, without cable tie
SC1 *	· M10 / 7,0 mm deep	· Attachment with cable tie
SC2 *	· M8 / 6,9 mm deep	· Attachment with cable tie

\* = Also available with cable tie: 200 x 4,8 mm (PA 6.6 / black)



SKC1



SC1

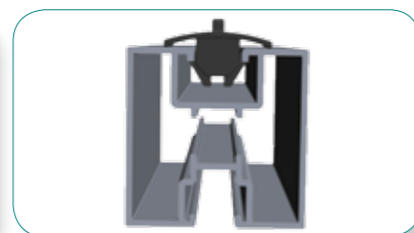


SC2

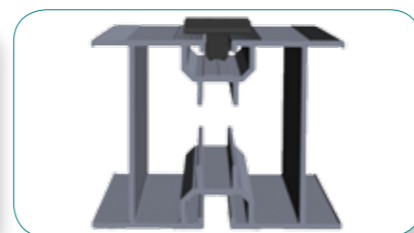
### Mounting of cable



SKC1



SC1



SC2

## Custom made clips

Besides the standard range of fixation clips, WKK also offers you the possibility to have clips custom made to meet your specific requirements.

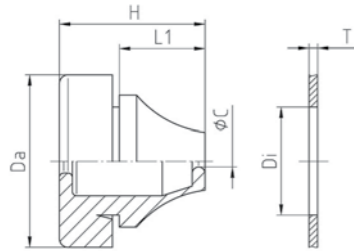
Through our subsidiary WKK Automotive, we have access to our own production facility which enables us to develop and produce customized clips.

Would you like more information or advice about the development of custom made clips? Please contact our sales department. We are at your service.



## Sealing grommets

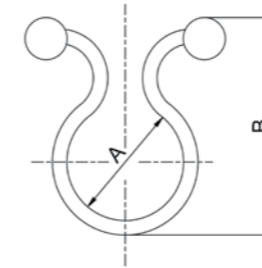
Material : EPDM, Chloroprene on request  
 Thread : Metric, PG  
 Temperature range : -40 °C up to +110 °C  
 Protection grade : IP 67  
 Certification : SEMKO 44: 1984  
 SEMKO report : 0211038 / 01-07  
 Colors : Grey (RAL 7035), black (RAL 9005)



Typenr.	Hole Ø Di (mm)	Wall thickness T (mm)	Cable Ø C (mm)	L 1 (mm)	H (mm)	Da (mm)	Packing (pcs)
M12 sealing grommet	12,5	0,5 - 2,0	4,0 - 7,0	5,4	12,7	20,0	50
M16 sealing grommet	16,5	1,0 - 4,0	5,0 - 9,0	10,5	18,0	21,0	50
M20 sealing grommet	20,5	1,0 - 4,0	8,0 - 13,0	12,7	20,0	25,5	50
M25 sealing grommet	25,5	1,0 - 4,0	11,0 - 17,0	14,5	21,6	30,5	50
M32 sealing grommet	32,5	1,0 - 4,0	15,0 - 20,0	17,5	24,8	38,5	25
M40 sealing grommet	40,5	1,0 - 4,0	19,0 - 28,0	20,4	30,0	48,5	25
M50 sealing grommet	50,5	1,0 - 4,0	27,0 - 35,0	23,9	35,0	60,5	10
PG7 sealing grommet	13,0	0,5 - 2,0	3,0 - 5,0	5,4	12,7	20,0	50
PG9 sealing grommet	16,0	1,0 - 4,0	5,0 - 7,0	10,3	18,0	21,0	50
PG11 sealing grommet	19,0	1,0 - 4,0	7,0 - 10,0	12,7	20,0	24,0	50
PG16 sealing grommet	23,0	1,0 - 4,0	10,0 - 14,0	14,7	21,6	28,0	50
PG21 sealing grommet	29,0	1,0 - 4,0	14,0 - 20,0	17,6	24,8	35,0	25
PG29 sealing grommet	38,0	1,0 - 4,0	20,0 - 26,0	20,0	28,5	46,0	25
PG36 sealing grommet	48,0	1,0 - 4,0	26,0 - 35,0	23,9	35,0	58,0	10

## Twistlocks

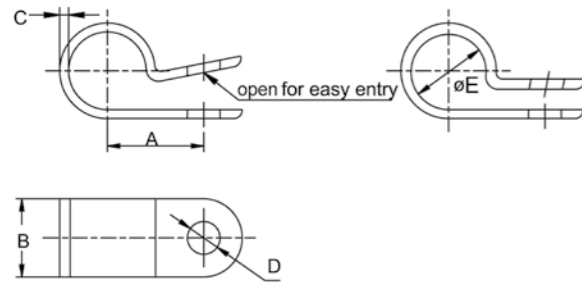
Material : Polyamide PA 6.6  
 Flammability : UL 94 V2  
 Color : Natural



Typenr.	Bundle diameter (mm)	A (mm)	B (mm)	Packing (pcs)
TH-D	10,2	11,2	28,4	100
TH-E	4,5	5,2	21,0	100
TH-F	7,3	8,3	25,2	100
TH-G	10,5	11,5	30,9	100
TH-H	14,0	15,0	35,1	100
TH-I	17,0	18,0	40,0	100
TH-J	19,0	19,5	42,5	100
TH-K	22,0	22,5	45,5	100

## Cable clamps

Material : Polyamide PA 6.6  
Color : Natural



Typenr.	Ø (mm)	A (mm)	B (mm)	C (mm)	D (mm)	Packing (pcs)
WKK CL 1/8 S	3,3	8,2	9,1	1,27	Ø 5,45 for M5	100
WKK CL 3/16 S	4,8	9,6	9,1	1,27	Ø 5,45 for M5	100
WKK CL 1/4 S	6,6	10,3	9,1	1,27	Ø 5,45 for M5	100
WKK CL 5/16 S	7,8	10,6	9,1	1,27	Ø 5,45 for M5	100
WKK CL 3/8 S	9,7	11,9	9,2	1,27	Ø 5,45 for M5	100
WKK CL 1/8	2,9	9,1	12,7	1,5	Ø 5,4 for M5	100
WKK CL 1/4	5,9	11,4	12,7	1,5	Ø 5,3 for M5	100
WKK CL 3/8	9,1	13,4	12,1	1,5	Ø 5,3 for M5	100
WKK CL 1/2	12,2	15,0	12,7	1,5	Ø 5,3 for M5	100
WKK CL 9/16	13,8	15,8	12,7	1,5	Ø 5,3 for M5	100
WKK CL 3/4	18,6	19,8	12,7	1,5	Ø 5,3 for M5	100
WKK CL 7/8	21,8	21,4	12,7	1,5	Ø 5,3 for M5	100

## Clamp straps

Material : Nylon  
Colors : Grey and natural

These universal halogen-free clamp straps are mainly used for the assembly of pipes



Typenr.	Ø (mm)	Packing (pcs)
UKB 031	16,0 - 22,0	50
UKB 032	25,0 - 28,0	50

## Single floor clamps

Material : Nylon  
Color : Natural



Typenr.	Ø (mm)	Packing (pcs)
PLC 16-19 mm single	16,0 - 19,0	100
PLC 20-25 mm single	20,0 - 25,0	100
PLC 25-30 mm single	25,0 - 30,0	100

## Cable clips with nail

Material : Nylon  
Colors : Natural, white, grey and cream



Typenr.	Ø (mm)	Colors	Packing (pcs)
SPC 700/5-7	5,0 - 7,0	White, grey, cream	100
SPC 700/8-10	8,0 - 10,0	White, grey, cream	100
SPC 700/11-15	11,0 - 15,0	White, grey, cream	100
SPC 700/16-19	16,0 - 19,0	Natural, grey, cream	50
SPC 700/23-29	23,0 - 29,0	Natural	50

## Braided sleeving

Material : Polyester PET HB  
 Temperature range : -50 °C up to +150 °C  
 Melting temperature : +250 °C  
 Color : Black



Typenr.	Bundle diameter (mm)	Packing (mtr)
Braided sleeving PG 3 mm	3,00 - 7,00	100
Braided sleeving PG 4 mm	4,00 - 10,00	100
Braided sleeving PG 5 mm	5,00 - 10,00	100
Braided sleeving PG 8 mm	8,00 - 11,00	100
Braided sleeving PG 10 mm	10,00 - 15,00	100
Braided sleeving PG 12 mm	12,00 - 19,00	50
Braided sleeving PG 15 mm	15,00 - 27,00	50
Braided sleeving PG 20 mm	20,00 - 28,00	50
Braided sleeving PG 25 mm	25,00 - 34,00	50
Braided sleeving PG 30 mm	30,00 - 37,00	50
Braided sleeving PG 40 mm	40,00 - 45,00	50
Braided sleeving PG 50 mm	50,00 - 65,00	50

## Wrapping bands

Material : Polyethylene  
 Temperature range : -50 °C up to +85 °C  
 Colors : Black and natural



Typenr.	Inside diameter (mm)	Outside diameter (mm)	W (mm)	Bundle diameter (mm)	Packing (mtr)
GST-4	5,0	6,0	7,0	4,0 - 50,0	10,0
GST-6	7,0	8,0	10,8	6,0 - 60,0	10,0
GST-8	8,5	10,0	11,4	7,5 - 60,0	10,0
GST-9	10,2	12,0	13,9	9,0 - 65,0	10,0
GST-12	13,0	15,0	15,0	12,0 - 70,0	10,0
GST-15	16,4	19,0	18,2	15,0 - 100,0	10,0
GST-20	21,0	24,0	19,6	20,0 - 130,0	10,0

## Hook and loop tape

Color : Black



Typenr.	Width (mm)	Packing (mtr)
Hook and loop tape back to back 12 mm	12,0	25
Hook and loop tape back to back 20 mm	20,0	25
Hook and loop tape back to back 25 mm	25,0	25
Hook and loop tape back to back 50 mm	50,0	25

## Corrugated tubing PA6

Material : Polyamide 6  
 Protection rating : IP 68  
 Flame class : UL 94 HB  
 Temperature range : -40 °C up to +120 °C  
 : short term +150 °C



On request also slotted and in Polypropylene available

### Applications:

Machine and plant constructions, automotive, shipbuilding, automation, electrical installations.

Mechanical protection for cables and conductors, pressure and impact resistant, flexible, high tensile and compressive strength.

Typenr.	DN	Inside diameter (mm)	Outside diameter (mm)	Bending radius (mm)	Packing (mtr)
Corrugated tubing DN 7,5	7,5	6,9	9,9	13,0	50
Corrugated tubing DN 8,5	8,5	8,4	11,4	15,0	50
Corrugated tubing DN 10,0	10,0	9,9	13,0	20,0	50
Corrugated tubing DN 12,0	12,0	12,2	15,7	30,0	50
Corrugated tubing DN 13,0	13,0	12,7	15,8	35,0	50
Corrugated tubing DN 14,0	14,0	14,2	18,5	40,0	50
Corrugated tubing DN 17,0	17,0	16,6	21,2	45,0	50
Corrugated tubing DN 22,0	22,0	21,2	25,5	50,0	50
Corrugated tubing DN 23,0	23,0	23,2	28,3	55,0	50
Corrugated tubing DN 26,0	26,0	25,7	32,2	60,0	50
Corrugated tubing DN 29,0	29,0	29,0	34,5	65,0	25
Corrugated tubing DN 36,0	36,0	36,0	42,4	90,0	25
Corrugated tubing DN 50,0	50,0	48,1	53,8	100,0	25
Corrugated tubing DN 56,0	56,0	56,3	67,2	130,0	30
Corrugated tubing DN 65,0	65,0	62,7	73,5	145,0	10
Corrugated tubing DN 70,0	70,0	67,5	80,0	160,0	10
Corrugated tubing DN 95,0	95,0	91,5	106,0	210,0	10



## Duct tape

Bearer : Polyester / linen weavings with Polyethylene coating  
 Adhesive : Natural rubber  
 Temperature resistance : +65 °C  
 Thickness : 0,25 mm  
 Colors : Black and silver

Suitable for temporary fixing of ducts and pipes and for other temporary repairs



Typenr.	Width (mm)	Length (mtr)	Packing (mtr)
Tape duct 50 mm	50	25	25

## PVC tapes

Adhesive : Rubber  
 Temperature resistance : +80 °C  
 Thickness : 0,15 mm

Suitable for electrical insulation and for a large number of other applications. It's also flame retardant.



Typenr.	Width (mm)	Colors	Length (mtr)	Packing (mtr)
Tape PVC 15 mm	15,0	Black, blue, red, white, brown	10	10
Tape PVC 19 mm	19,0	Black, mixed assortment, yellow/green, grey, blue, red, white, yellow, brown	10	10
Tape PVC 50 mm	50,0	Black	10	10

## Double sided foam tapes

Material : Polyethylene  
 Temperature range : -20 °C up to +60 °C  
 Thickness : 0,8 mm  
 Color : White



Typenr.	Width (mm)	Length (mtr)	Packing (mtr)
Tape foam 12 mm	12	50	50
Tape foam 15 mm	15	50	50
Tape foam 19 mm	19	50	50
Tape foam 25 mm	25	50	50

## Self amalgamating tapes

Adhesive : Rubber  
 Temperature resistance : +90 °C  
 Thickness : 0,50 mm  
 Color : Black

Suitable for insulating electrical wiring, waterproofing hoses, etc. Also suitable for final and temporary repairs.



Typenr.	Width (mm)	Length (mtr)	Packing (mtr)
Self amalgamating tape 19 mm	19	10	10
Self amalgamating tape 25 mm	25	10	10
Self amalgamating tape 38 mm	38	10	10
Self amalgamating tape 50 mm	50	10	10



## General terms of delivery and payment

### Validity of our terms

These terms apply to all offers and agreements, however they may be named, agreed to or concluded with third parties. Any variations to these terms, including purchasing agreements, and endorsed by a third party, will not be considered binding. Our terms will always prevail.

### Offers

All offers are without any binding obligation net/net and exclusive of Value Added Tax, unless specifically stated otherwise and or based on approved drawings provided by either party relating to the said offer. All data mentioned in printed matter provided by us is not legally binding.

The responsibility for the right application and the suitability of the matter offered for the required application by the party to whom is offered, lies with the latter. Samples of small items such as cable ties, terminals, cable end-sleeves etc. are supplied complimentary for testing purposes and quality checks.

### Agreements

Agreements, in any form and including amendments, only become binding upon written confirmation by us reflecting agreed details and the way that acceptance was reached. Acceptance as defined here can only be endorsed by a member of the management team or one of our staff members who has right of proxy.

### Prices

We exercise the right to charge the current prices on the day of delivery. This also applies to backorders. All prices mentioned during promotional campaigns, in our catalogue, leaflets or any other type of advertising material, are net/net and exclusive the Value Added Tax. We reserve the right:

- in case of agreements with a person who does not act in the capacity of a trade or represent a company, to charge any or all price increases and or levy imposed by government legislation if it occurs within the first 3 months of commencement of this agreement.
- in case of legal entities or entity acting in a professional capacity or legally representing a company, to charge such an entity any or all price increases due.

### Delivery, delivery times and partial deliveries

Delivery conditions are always in conformation with the offer or as accepted by agreement. The seller has the right to charge extra costs incurred by following the special instructions of the buyer, e.g. "dispatch by express or special transport".

#### Delivery times:

- Delivery times are indicative and will never be guaranteed.
- Non-compliance to the delivery time gives the buyer, a natural person not following a trade or representing a company, only the right to claim compensation and or cancellation of the agreement if the statutory requirements have been met.
- Non-compliance to the delivery time does not give the buyer, in the capacity of a legal entity or entities, the right to claim compensation and or dissolution of the agreement.

#### Part delivery:

We reserve the right to deliver an order in parts. The buyer is compelled to pay the applicable invoices in compliance with our terms of payment.

### Extended ownership

The goods delivered remain in our ownership until the purchaser has fully paid the amounts due in relation to the delivered goods, inclusive of possible interest charges and derived costs. The risk of loss or damage pertaining to purchased goods is transferred to the buyer at point of delivery or otherwise confirmed in writing. The buyer is not entitled to dispose of the goods, in any form, or allow third parties the use of them before payment has been received in full. In case of failure to meet it's payment obligations, the buyer is obliged to return the goods on first demand, and to co-operate fully to enable us to exercise our rights.

### Packaging

The selling price is, unless otherwise agreed, inclusive of the packaging costs. The form of packaging is decided by us. Packing can not be returned. Extra or different packaging requirements as stipulated by the buyer will be charged additionally.

### Transport and transport damage

The method of transportation is decided by us. Should the buyer require a different method of transport, than the one decided by us, additional costs can be charged to the buyer. If the packaging or the goods appear to be damaged on arrival, the buyer is obliged to lodge or countersign an official report with the forwarder before accepting the goods and should send at least one copy of the report to us within forty-eight hours.

### Claims

Claims can only be entertained by us, if they have been received in writing and correctly addressed, within 14 days of the said delivery taking place.

### Return of goods

Goods can only be returned after written permission from us. The risk of loss or damage to the goods remains with the buyer unless otherwise agreed by us in writing.

### Payment

Payment for the goods shall be made in full, unless otherwise agreed in writing, directly to us within thirty days of the date of invoice and without any unauthorised deductions. In so far as payment has not taken place within thirty days after the date of invoice, we have the right to charge the purchasing party interest on the amount due from due date, being 2% a month or part thereof as well as charge all relating judicial and extra-judicial collection costs incurred by us. The extra-judicial collection costs are 15% of the amount on invoice with a reserve of 125,- Euro each invoice. We reserve the right to deliver C.O.D. (cash on delivery). We always deliver C.O.D. to buyers who are unknown to us, unless references can be supplied timely indicating a solid financial position. If a credit granted to a buyer gets too high in our opinion, we reserve the right to demand payment before we execute new orders or part orders.

### Warranty

We supply a warranty with our goods in so far as and for that part that we were able to obtain a warranty from our suppliers. This remains subject to the goods delivered being faulty and we will at all times have the choice to replace or repair of the goods or parts thereof. We reserve the right in those cases to take back the goods or parts thereof and credit the buyer accordingly. Our warranty cannot be invoked for faults or malfunctions that are incurred as a consequence of force from outside, poor maintenance, overload, natural wear and tear or other causes beyond our control. Slight technical deviations in colour, structure of the material or finish, common and/or inevitable to the trade, are not covered by the warranty and do not oblige us to any form of compensation and do not give the buyer the right to refuse delivery of the goods or refuse payment of the goods delivered.

### Liability/force majeure

#### Paragraph 1:

We do not accept liability, in cases of force majeure or circumstances that hinder the usual continuance in our company - e.g. for non-delivery or overdue delivery by our suppliers, lack of labour force, strike or exclusion of staff etc. - and which render us temporarily or permanently incapable to fulfil the contract(s), irrespective whether the circumstances mentioned were foreseeable or not at the time of the conclusion of the contract. In cases of force majeure or the circumstances here described we can suspend the execution of the orders, until the force majeure or the circumstances here described cease to exist. Alternatively we reserve the right to annul the agreement entirely or partially, in so far as it has not been executed, without any judicial intervention.

#### Paragraph 2:

In cases of agreements with natural persons who do not act in the capacity of a trade or representing a company, our liability, subject to the stipulation in paragraph 3, never reaches beyond our statutory liability. In cases of agreements with legal entities who officially represent a trade or a company, our liability, subject to the stipulation in paragraph 3, never reaches further than the amount of the order.

#### Paragraph 3:

In all cases we exclude consequential damage, except in cases where it's proven to be a matter of intentional act or gross negligence on our part and only then to the maximum as referred to in paragraph 2. For personal damage as a consequence of a faulty product we are only liable in so far as we are producer or EC importer and only as far as our statutory liability.

#### Paragraph 4:

If, in spite of the liability as set out in this article, we are called upon with regards to the execution of this agreement, the client or buyer shall indemnify us entirely, inclusive of all costs that are subsequently incurred due to us being held liable.

### Failure in fulfilment

If the buyer fails to meet his obligations properly or does not comply with any obligation arising from the agreement in time, including bankruptcy, suspension of payment or liquidation of the company, he is considered to be in default by operation of law and we have the right to suspend the agreements concluded with the buyer without further notification of default and without judicial intervention or to dissolve the agreement entirely or partially without incurring subsequent liabilities. In the case of dissolving the agreement we are entitled to take back delivered and unpaid goods as our property without prejudice to our right of compensation.

### Disputes

#### Paragraph 1:

Dutch law is applicable to agreements that are subjected to these terms, irrespective of international trade regulations.

#### Paragraph 2:

All disputes arising from such agreements with the buyer, will:

- In case of a dispute, as referred to aforementioned with a legal entity representing a trade or a company, it will be settled exclusively by the competent Court of law residing in the district of Breda in The Netherlands and without prejudice to our right to start an action against the other party in a statutory competent Court.
- In case of a dispute, as referred to aforementioned with an other party being a natural person, not representing a trade or a company, it will be settled in a statutory competent Court residing in The Netherlands and under Dutch law.

WKK Nederland B.V. is entitled to change these general terms and conditions.

The last filed version of these terms and conditions will be applicable.

**Filed at the Chamber of Commerce in Tilburg under number 1232**





*Your Personal Connection*

The content of this WKK catalogue has been carefully checked for accuracy at the time of print. However, WKK doesn't give any warranty of any kind, express or implied, in this respect and shall not be liable for any loss or damage that may result from any use or as a consequence of any inaccuracies in or any omissions from the information which it may contain.

© WKK 2018. Copyright in these pages is owned by WKK except where otherwise indicated. No part of this publication may be reproduced, copied or transmitted in any form or by any means, without our prior written permission. Images, trade marks, brands, designs and technology are also protected by other intellectual property rights and may not be reproduced or appropriated in any manner without written permission of their respective owners. WKK reserves the right to change and improve any product specifications or other mentions in the publication at its own discretion and at any time.