

Plastic cable binders for standard applications



WT-HF ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			WH	BK	
2.5 x 98	1 - 21	80	3240732	3240733	100
2.5 x 98	1 - 21	80	3240735	3240734	1000
2.6 x 160	1 - 40	80	3240736	3240737	100
2.6 x 160	1 - 40	80	3240739	3240738	1000
2.6 x 200	1 - 52	80	3240740	3240741	100
2.6 x 200	1 - 52	80	3240743	3240742	1000
3.6 x 140	2 - 35	130	3240744	3240745	100
3.6 x 140	2 - 35	130	3240747	3240746	1000
3.6 x 200	3 - 50	130	3240748	3240749	100
3.6 x 200	3 - 50	130	3240751	3240750	1000
3.6 x 290	3 - 80	130	3240752	3240753	100
3.6 x 290	3 - 80	130	3240755	3240754	1000
4.5 x 160	2.5 - 40	220	3240756	3240757	100
4.5 x 160	2.5 - 40	220	3240759	3240758	1000
4.5 x 200	3 - 50	220	3240760	3240761	100
4.5 x 200	3 - 50	220	3240763	3240762	1000
4.5 x 290	3.5 - 79	220	3240764	3240765	100
4.5 x 360	3.5 - 100	220	3240768	3240769	100
4.5 x 430	3.5 - 115	220	3240770	3240771	100
7.8 x 300	4 - 80	540	3240772	3240773	100
7.8 x 365	8 - 100	540	3240774	3240775	100
7.8 x 540	35 - 158	540	3240719	3240721	100
9 x 780	32 - 233	700	3240778	3240779	100
12.6 x 850	30 - 143	1080	3240730	3240731	100
12.6 x 1000	40 - 302	1080	3240728	3240729	50
Technical data					
Approvals					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 85°C					

Plastic cable binders for use under high temperatures



WT-HT HF ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			WH	BK	
2.5 x 98	1 - 21	80	3240780	3240781	100
3.6 x 140	2 - 35	130	3240782	3240783	100
3.6 x 200	3 - 50	130	3240784	3240785	100
4.5 x 200	3 - 50	220	3240786	3240787	100
4.5 x 290	3.5 - 79	220	3240788	3240789	100
7.8 x 365	8 - 100	540	3240792	3240793	100
Technical data					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 125°C					

UV-resistant and weatherproof plastic cable binders for outdoor use



WT-UV HF ... BK

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			BK		
2.5 x 98	1 - 21	80	3240831		100
3.6 x 140	2 - 35	130	3240832		100
3.6 x 200	3 - 50	130	3240833		100
4.5 x 200	3 - 50	220	3240834		100
4.5 x 290	3.5 - 79	220	3240835		100
7.8 x 365	8 - 100	540	3240837		100
Technical data					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 105°C					

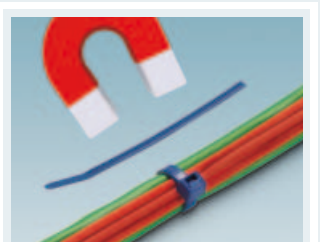
Plastic cable binders, can be removed without tools and reused



WT-D HF ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			WH	BK	
7.5 x 200	6 - 50	220	3240712	3240713	100
7.5 x 250	6 - 65	220	3240714	3240715	100
7.5 x 350	6 - 100	220	3240716	3240717	100
Technical data					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 80°C					

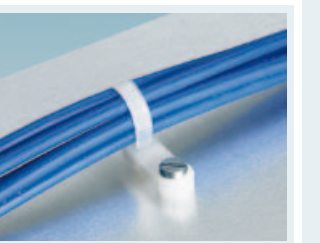
Detectable cable binders, specially designed for use in the food, pharmaceutical, and chemical industry



WT-ID HF ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			BU		
2.5 x 98	1 - 21	80	3240794		100
3.5 x 140	2 - 35	130	3240795		100
3.5 x 200	3 - 50	130	3240796		100
4.5 x 200	3 - 50	220	3240797		100
4.5 x 290	3.5 - 79	220	3240798		100
7.5 x 365	8 - 100	540	3240800		100
Technical data					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 85°C					

Plastic cable binders with lug for direct screw or rivet mounting



WT-E HF ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Hole diameter [mm]	Order No.		Quantity
				WH		
3.6 x 150	2 - 32	130	4.5	3240718		100
4.8 x 200	3.5 - 50	220	5.2	3240720		100
7.8 x 200	4 - 44	540	6.5	3240722		100
7.8 x 300	4 - 75	540	6.5	3240724		100
7.8 x 380	4 - 104	540	6.5	3240726		100
Technical data						
Material PA 6.6						
Contents Free from silicone and halogen						
Inflammability class according to UL 94 V2						
Temperature range -40°C... 85°C						

Plastic cable binders with body-bound rivet for direct mounting



WT-R HF ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Hole diameter [mm]	Order No.		Quantity
				WH		
3.6 x 150	1.5 - 38	130	5.2	3240801		100
4.8 x 200	2 - 50	220	6.3	3240803		100
Technical data						
Material PA 6.6						
Contents Free from silicone and halogen						
Inflammability class according to UL 94 V2						
Temperature range -40°C... 85°C						

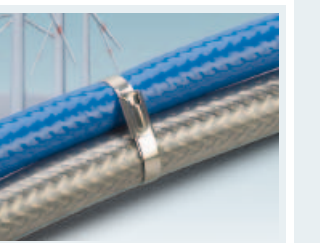
Stainless steel cable binders for harsh ambient conditions, such as the chemical and processing industry



WT-STEEL S ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			SR		
4.6 x 150	30	890	3240807		100
4.6 x 201	50	890	3240808		100
4.6 x 259	69	890	3240809		100
4.6 x 360	102	890	3240810		100
4.6 x 520	152	890	3240811		100
4.6 x 679	203	890	3240812		100
4.6 x 838	254	890	3240723		100
4.6 x 1067	305	890	3240805		100
7.9 x 259	69	1335	3240814		100
7.9 x 360	102	1335	3240815		100
7.9 x 520	152	1335	3240816		100
7.9 x 679	203	1335	3240817		100
7.9 x 838	254	1335	3240725		100
7.9 x 1067	305	1335	3240813		100
Technical data					
Approvals Lloyd Register					
Material AISI 304, 1.4301 (V2A)					
Temperature range -80°C ... 538°C					
Properties Resistant to vibration, weather, and UV, anti-magnetic and fire-proof					

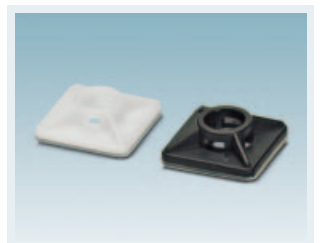
Stainless steel cable binders for the harshest of ambient conditions, such as the onshore and offshore industry



WT-STEEL SH ...

Dimensions [mm]	Bundle diameter [mm]	Minimum tensile strength [N]	Order No.		Quantity
			SR		
4.6 x 150	30	890	3240820		100
4.6 x 201	50	890	3240821		100
4.6 x 259	69	890	3240822		100
4.6 x 360	102	890	3240823		100
4.6 x 520	152	890	3240824		100
4.6 x 679	203	890	3240825		100
4.6 x 838	254	890	3240727		100
4.6 x 1067	305	890	3240818		100
7.9 x 259	69	1335	3240827		100
7.9 x 360	102	1335	3240828		100
7.9 x 520	152	1335	3240829		100
7.9 x 679	203	1335	3240830		100
7.9 x 838	254	1335	3240766		100
7.9 x 1067	305	1335	3240826		100
Technical data					
Approvals Lloyd Register					
Material AISI 316, 1.4401 (V4A)					
Temperature range -80°C ... 538°C					
Properties Resistant to vibration, weather, and UV, anti-magnetic and fire-proof Resistant to aggressive chemicals, such as acids and salt water					

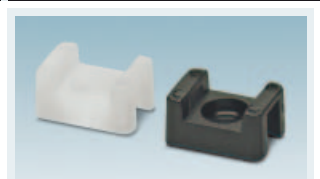
Plastic cable binder bases, self-adhesive and/or screwable



WT-BASE LS HF ...

Dimensions [mm]	Cable binder width [mm]	Hole diameter [mm]	Order No.		Quantity
			WH	BK	
19 x 19 x 5	4	4.0	3240706	3240707	100
27 x 27 x 6.5	6	4.8	3240708	3240709	100
Technical data					
Material ABS					
Material adhesive Rubber					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 HB					
Temperature range -40°C... 60°C					

Screwable cable binder bases



WT-BASE HF ...

Dimensions [mm]	Cable binder width [mm]	Hole diameter [mm]	Order No.		Quantity
			WH	BK	
9.5 x 15 x 7	5	3.5	3240702	3240703	100
14.6 x 22.5 x 11	9	5	3240704	3240705	100
Technical data					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 85°C					

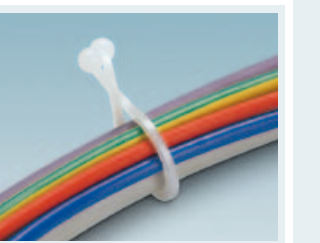
Cable binder bases with body-bound rivet or fins



WT-BASE R HF ...

Dimensions [mm]	Cable binder width [mm]	Drilling diameter [mm]	Order No.		Quantity
			WH	BK	
20.5 x 10 x 18.5	8	6.5	3240711		100
13 x 20 x 43	9.5	8		3240710	100
Technical data					
Material PA 6.6					
Contents Free from silicone and halogen					
Inflammability class according to UL 94 V2					
Temperature range -40°C... 85°C					

Cable drillers, for fast and tool-free bundling of conductors and cables



WG-D HF ...

Bundle diameter [mm]	Order No.		Quantity
	WH	BK	
5.1 - 7.6	3241099	3241100	100
7.6 - 10.2	3241101	3241102	100
10.2 - 12.7	3241103	3241104	100
12.7 - 16	3241105	3241106	100
16 - 20.3	3241107	3241108	100
Technical data			
Material PA 6.6			
Contents Free from silicone and halogen			
Inflammability class according to UL 94 V2			
Temperature range -40°C... 85°C			

The spiral hoses are used for easy bundling and guiding of cables and conductors



WG-S HF ...

Bundle diameter [mm]	Order No.		Quantity
	WH	BK	
2 - 15	3241109	3241110	50
4 - 20	3241111	3241112	25
7 - 40	3241113	3241114	25
12 - 50	3241115	3241116	25
13 - 70	3241117	3241118	25
15 - 80	3241119	3241120	20
20 - 120	3241121	3241122	25
25 - 150	3241123	3241124	20
Technical data			
Material PE			
Contents Free from silicone and halogen			
Inflammability class according to UL 94 HB			
Temperature range -50°C... 85°C			

Cable binder tools

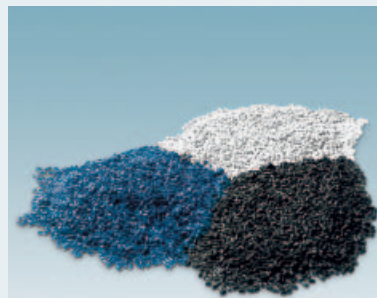


Ergonomic cable binder tools from Phoenix Contact tension and cut plastic and high-grade steel cable binders in one step. The tension force is infinitely adjustable and is indicated by a scale in the handle area of the tool. When the tension force is reached, the remainder is automatically severed for a flush finish.

Description	Type	Order No.	Quantity
Professional cable binder tool for cable binders with a width of 2.4 - 4.8 mm, material thickness up to 1.6 mm, tensile force 3 - 15 kg	UNIFOX-CT 4,8P	1212475	1
Standard cable binder tool for cable binders with a width of 2.4 - 4.8 mm, material thickness up to 1.6 mm, tensile force 4.5 - 11 kg	UNIFOX-CT 4,8	1212609	1
Professional cable binder tool for steel cable binders with a width of up to 7.9 mm, for a material thickness of up to 0.3 mm, and tensile force of 32 - 65 kg	UNIFOX-M 7,9	1212610	1

Expertise in cable ties and bundling

Quality features of the plastic polyamide (PA) used



Polyamide has been a recognized and established material in electrical engineering and electro-mechanics for many years. Even at high operating temperatures, polyamide has excellent electrical, mechanical, chemical, and thermal properties. Cable binders from Phoenix Contact are therefore manufactured using this plastic.

In a standard climate of 23°C and 50% humidity, polyamide can absorb water from its surroundings and emit it again, on average at a rate of 2.5%. At this state of equilibrium, the plastic demonstrates its optimum properties:

- High form stability even under the influence of heat
- High tensile strength, rigidity, and hardness
- High tenacity
- High resistance to abrasion and sliding properties

The properties, in particular the flexibility and minimum holding force, are influenced by the water content. Cable binders are therefore to be stored in PE bags until they are used. Direct sunlight and contact with heat sources should be avoided. The ideal storage environment is in standard climatic conditions.

Polyamide, which is used at Phoenix Contact for cable bundling applications, is free from silicone and halogen, and suitable for operating temperatures from -50°C to +125°C, depending on additives.

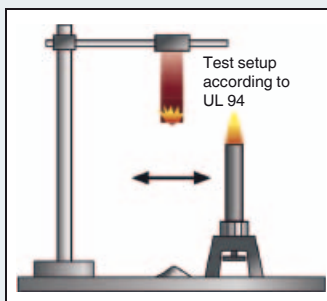
Halogen-free

The term halogen-free, based on international standards for the basic materials for PCBs (e.g., IEC 61249-2-21, IPC 4101 C), relates to the elements chlorine and bromine in flame protection agents. This also forbids the use of flame protection agents containing halogen in accordance with DIN EN ISO 1043-4. This means that, according to the definition in the ZVEI position paper (requirements for the use of halogen-free products in the electrical and electronics industry), no flame protection agents containing halogen or PVC are present in the components.

Material and environmental tests

Inflammability classification

UL 94 describes inflammability tests that have gained particular importance in the field of electrotechnology. Behavior in fire is the main focus. Items are classified according to either UL 94 HB (Horizontal Burn) or UL 94 V (Vertical Burn). The test setup is such that the 94 V0/1/2 classifications are stricter than the 94 HB classification.



UL 94 V0/1/2

After conditioning, the test bar is vertically clamped and flame-treated several times for 10 seconds at a time. Between the flame treatments, the time until the test bar is extinguished is measured. Afterwards, the afterburning times and the drip behavior are evaluated. The test procedure laid down by this

standard is not suitable for foils and/or very thin test objects that shrink under the heat of the flame.

The plastic used for Phoenix Contact products fulfills the higher-grade criteria.

Classification	UL 94 V0	UL 94 V1
Burning time after each flame treatment	≤ 10 s	≤ 30 s
Total burning time after 10 flame treatments	≤ 50 s	≤ 250 s
Glowing time after the 2nd flame treatment	≤ 30 s	≤ 60 s
Complete burn-off	No	No
Inflammation of the absorbent cotton under the sample	No	No

Classification	UL 94 V2	UL 94 HB
Burning time after each flame treatment	≤ 30 s	–
Total burning time after 10 flame treatments	≤ 250 s	–
Glowing time after the 2nd flame treatment	≤ 60 s	–
Complete burn-off	No	Yes
Inflammation of the absorbent cotton under the sample	Yes	–

UV-resistant and weatherproof



In addition to infrared radiation, the solar radiation has radiation ranges from the UV-A and UV-B spectrum. In particular, UV-B radiation damages plastic and thereby restricts its mechanical properties. An accelerated ageing test according to DIN EN ISO 4892 provides details regarding UV resistance. Cable

binders without any special UV absorbers can withstand around 150 hours of high dose UV-B radiation without any damage. This is equivalent to outdoor use for up to 3 years in Central Europe. A much higher level of resistance can be achieved by integrating UV absorbers. The UV-stabilized cable binders from Phoenix Contact feature weather and UV resistance of up to 10 years.

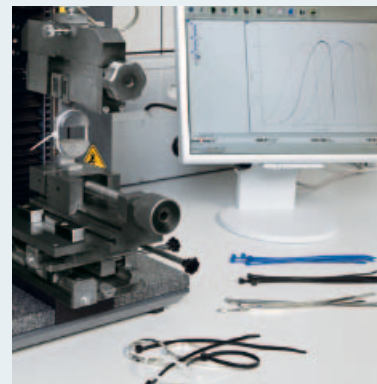
Resistance to oil and chemicals



Physical and/or chemical processes/reactions can occur as a result of external media, such as liquids or gases. This can result in a change to the plastic's properties, the plastic becoming damaged or even destroyed. In order to prevent this from happening, Phoenix Contact uses only plastics which have been tested in accordance with DIN EN ISO 175.

Chemical	Weight %	Chemical	Weight %
Alkalis		Oils, greases, aliphatic and aromatic hydrocarbons	
Sodium hydroxide solution	3	IRM 902/IRM 903	100
Potassium hydroxide solution	3	ASTM No. 1	100
Ammonium hydroxide (ammonia water)	25	Xylol	100
Alcohols		Test benzene (180/220)	100
Ethanol	100	Hycut SU 68/SET 46	100
1-propanol	100	Shell Tellus 92	100
2-propanol	100	Motor oil	100
Diethylene glycol	100	Toluol	100
Aldehyde/ketones		Aqueous salt solutions	
Ethyl acetate	100	Sodium chloride	5
Methyl ethyl ketone	100	Potassium chloride	5
Acetone	100	Ammonium chloride (ammonia solution)	100

Tensile strength (loop tensile strength)



One of the key criteria for selecting cable binders is the minimum holding force (minimum tensile strength). This defines the stability of the cable binders in a steady state (2.5% water content). DIN EN 62275: 2010 and SAE AS 23190 form the basis of the test conditions and result evaluation of the tensile strength. The cable binder spans a defined field

(Ø 38 ± 0.2 mm) and is pulled open at a speed of 25 mm/min.. The force determined when the cable binder tears or the plastic becomes deformed (flows), must be above the values defined in the standard. The loop tensile strength values for cable binders from Phoenix Contact are significantly higher than the limit values defined by standards.

A simple calculation can be used to determine the required minimum holding force for the individual application.

$$\text{Mass [kg]} = \text{preload* [kg]} + \text{bearing load [kg]}$$

$$\text{Minimum holding force [N]} = \text{mass [kg]} \times \text{gravitational acceleration [m/s}^2\text{]}$$

Example:

$$\text{Mass [kg]} = 5 \text{ kg} + 15 \text{ kg} = 20 \text{ kg}$$

$$\text{Minimum holding force [N]} = 20 \text{ kg} \times 9.81 \text{ m/s}^2 = 196.2 \text{ N}$$

The result of 196.2 N defines the required minimum holding force (minimum tensile strength) of the cable binder.

However, in the case of a static load, the cable binder with the next highest tensile strength should be selected.

If a dynamic load occurs, such as vibrations or expansions, it is advisable to determine a safety factor.

* Preload = tensile force when tightening the cable binders

Further information on the products presented here and on the world of solutions from Phoenix Contact can be found at www.phoenixcontact.net/catalog



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Mounting material

Cable ties and bundling