



大同塑膠絕緣電線電纜

Tatung Plastic Insulated Wire & Cable

www.tatung.com.tw



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一、塑膠絕緣電線簡介

INTRODUCTION TO PLASTIC INSULATED WIRE AND CABLE

(1) PVC 絕緣電線

PVC INSULATED WIRE

Polyvinyl chloride (簡稱PVC) 係一高重合度之聚合物化學材料，具有高絕緣特性，以及抗磨擦、耐候性，最適用於電線電纜之絕緣與被覆體，謂之PVC電線、電纜。

本公司之PVC材料與先進國外廠商技術合作並引進最新技術，所配出PVC具有高性能之電氣特性與絕緣特性，用於外覆保護之PVC更具耐候、耐寒、耐溫及耐化學藥品之特殊性能，使製造出電纜能在連續供電情況下耐溫高至60°C，若有特別要求耐熱時，可配用耐熱75~105°C之PVC材料之電纜。

Polyvinyl chloride (PVC) is a chemical compound of high degree of polymerization with characteristics of high insulation and abrasion-resistant, weather-proof. It is called PVC cable or PVC wire if PVC is used as an insulation or sheath to cables or wires. There is a technical collaboration for the production of PVC between Tatung Co. and a well-known foreign manufacturer with its most advanced technology. The specifically compounded PVC possesses excellent electrical performances and insulation properties. In case, it is used as sheath material, It also has special properties of weather-proof, heat-resistant, cold-resistant & chemical-resistant. It is designed to withstand 60°C temperature rise under continuous operation, if situation requires, the cables to withstand 75-105°C are also available upon special request.

(2) PE 絕緣電線

PE INSULATED WIRE

Polyethylene (簡稱PE)，其絕緣電阻及高頻率電力損失等電力特性，遠超過其他材料，同時又具有安定之化學性能、重量輕等諸多優點，最適用於作電線絕緣材料。電纜之外被仍以具耐磨損及耐候之PVC材料保護之。

Polyethylene (PE) excels other materials in insulation resistance and high frequency power losses. In the meantime, PE possesses many other merits such as chemically stable, light-weight etc.. Usually the PE cable is still protected by abrasion-resistant and weather-proof PVC sheath.

3) PVC 電線、PE 電線主要特性

PROPERTIES OF PVC WIRE AND PE WIRE

項目種類 ITEMS		PVC	PE	
電氣特性 Electrical Properties	體積固有電阻20°C時・Ω・cm Volume Resistivity at 20°C (Ω・cm)		10 ¹³ ~10 ¹⁵	7 x 10 ¹⁶
	介電常數 (50Hz) Dielectric Constant (50Hz)		5~9	2.3
	tan δ (50Hz) Dielectric Loss Tangent (50Hz)		8~15	0.05
	介電強度 KV/mm dielectric Strength KV/mm		25~35	30~50
物理特性 Physical Properties	常溫 Before aging	抗張強度 (kg/mm ²) Tensile Strength	1.0~2.4	1.4
		伸長率 (%) Elongation	150~300	450
	老化 After Aging	抗張強度殘率 (%) Ratio of Tensile Strength After Aging to Before Aging	85以上 above 85	85以上 above 85
		伸長殘率 (%) Ratio of Elongation After Aging to Before Aging	70以上 Above 70	70以上 Above 70
最高使用導體溫度 °C Max Operating Conductor Temperature °C		60	75	
最高短路導體溫度 °C Max Conductor Temperature at Short Circuit °C		120	150	

(14) 600V耐熱聚氯乙烯絕緣電線 (HIV) (表十四)

(CNS 8379C2103)

600V GRADE HEAT-RESISTANCE PVC INSULATED WIRES (TABLE 14)

導體 Conductor			絕緣厚度 Thickness of Insulation mm	完成外徑 (約) Approx. Overall Diameter mm	導體電阻 Conductor Resistance Ω/KM at 20 °C	試驗電壓 Test Voltage V/1min	絕緣電阻 Insulation Resistance MQ-KM at 20°C	概算重量 (約) Approx. Weight Kg/KM	標準長度 Standard Length m
標稱截面積 Nominal Cross Section Area mm ²	構成 單線數/單線徑 Number/ Diameter of Wires NO/mm	外徑(約) Outer Diameter mm							
-	1/1.2	1.2	0.8	2.8	15.8	1500	50	17	300
-	1/1.6	1.6	0.8	3.2	8.92	1500	50	27	300
-	1/2.0	2.0	0.8	3.6	5.65	1500	50	38	300
-	1/2.6	2.6	1.0	4.6	3.35	1500	50	65	300
-	1/3.2	3.2	1.2	5.6	2.21	1500	50	95	300
0.9	7/0.4	1.2	0.8	2.8	20.9	1500	50	16	300
1.25	7/0.45	1.4	0.8	3.0	16.5	1500	50	19	300
2.0	7/0.6	1.8	0.8	3.4	9.24	1500	50	28	300
3.5	7/0.8	2.4	0.8	4.0	5.20	1500	50	45	300
5.5	7/1.0	3.0	1.0	5.0	3.33	1500	50	70	300
8	7/1.2	3.6	1.2	6.0	2.31	1500	50	105	300
14	7/1.6	4.8	1.4	7.6	1.30	2000	40	170	300
22	7/2.0	6.0	1.6	9.2	0.824	2000	40	260	200
38	7/2.6	7.8	1.8	11.5	0.487	2500	40	430	100
60	19/2.0	10.0	1.8	14.0	0.303	2500	30	650	300
100	19/2.6	13.0	2.0	17	0.180	2500	30	1070	300
150	37/2.3	16.1	2.2	21	0.118	3000	20	1600	300
200	37/2.6	18.2	2.4	23	0.0922	3000	20	2020	300
250	61/2.3	20.7	2.4	26	0.0722	3000	20	2580	200
325	61/2.6	23.4	2.6	29	0.0565	3500	20	3280	200
400	61/2.9	26.1	2.6	32	0.0454	3500	20	4040	200
500	61/3.2	28.8	2.8	35	0.0373	3500	20	4910	200

(15) 600V 105°C 聚氯乙烯絕緣可撓電線 (表十五)

600V 105°C PVC INSULATED FLEXIBLE WIRE

導體 (Conductor)			絕緣 厚度 Thickness of Insulation mm	完成 外徑(約) Approx. Overall Diameter mm	導體電阻(20°C) Conductor Resistance		試驗 電壓 Test Voltage V/1min	絕緣 電阻 (20°C) Insulation Resistance MQ-KM	概算 重量 (約) Approx. Weight kg/km
標稱 截面積 Cross Section Area mm ²	構成 股數/單線徑 Number/ Diameter of wires NO/mm	外徑 (約) Outer Diameter mm			裸銅 Uncoated Copper Ω/km	鍍錫 Coated Copper Ω/km			
2	12/0.45	1.8	0.8	3.4	9.65	10.20	1500	50	28
3.5	22/0.45	2.5	0.8	4.1	5.26	5.56	1500	50	45
5.5	35/0.45	3.1	1.0	5.1	3.31	3.50	1500	50	70
8	50/0.45	3.7	1.2	6.1	2.32	2.45	1500	50	105
14	88/0.45	4.9	1.4	7.7	1.32	1.39	2000	40	175
22	7/20/0.45	7.0	1.6	10.2	0.844	0.892	2000	40	265
30	7/27/0.45	8.1	1.6	11.3	0.625	0.661	2000	40	335