

CHANGYUAN ELECTRONICS GROUP CO., Ltd.  
Shanghai Changyuan Electronic Material Co.,Ltd.

**CERTIFICATION**

<b>Customer Name:</b>		<b>Products Name: Heat-shrinkable Tube</b>		
<b>Products Range: series</b>		<b>Standard : BLACK</b>		
<b>Withstand voltage level: 600V</b>		<b>UL NO. : E180908</b>		
<b>Products Type: CB-HFT</b>		<b>Rev. : A/2</b>		
<b>Customer Part Number: BP 300、 BP 400</b>				
<b>Customer signature</b>	<b>Approve</b>	<b>Re-Check</b>	<b>Check</b>	<b>Charge</b>
	<b>Date</b>	<b>Date</b>	<b>Date</b>	<b>Date</b>

**P.C.:518057**

**Add: Bld#30-4,Shenzhen Science & Technology Industry Park, Nanshan, Shenzhen, China**

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**P.C.: 201802**

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## — . Specifications

Item		Reference	Specifications
Entirely shrink temperature ( °C )		UL224	≥125
Shrink time ( min )		UL224	5min
Temperature Range ( °C )		UL224	-40-125
Longitudinal Shrinking Ratio ( % )		UL224	≤±5
Tensile Strength ( MPa )		UL224	≥10.4
Elongation Ratio ( % )		UL224	≥200
Aging in circulating-air oven		UL224	( 158±1.0 ) °C,7days
After aging	Tensile Strength ( MPa )	UL224	≥7.3
	Elongation Ratio ( % )	UL224	≥100
Dielectric Voltage Withstand ( V )		UL224	600
Volume Resistivity ( Ω·cm )		UL224	≥10 <sup>12</sup>
Dielectric Strength ( kV/mm )		UL224	≥15
Corrosion of Bare Copper		UL224	No corrosion
Heat Shock		UL224	No cracking
Cold Bend		UL224	No cracking
Flammability		UL224	VW—1
Concentricity ( % )		UL224	≥65

## — . Controlled hazardous substances

Item	Test Standard	Test Result
Cd	IEC 62321/2 111/95/CDV	<5ppm
Pb	IEC 62321 111/95/CDV	<50ppm
Hg	IEC 62321 111/95/CDV	<2ppm
Cr	IEC 62321 111/95/CDV	<5ppm
PBBs	IEC 62321 111/95/CDV	N.D
PBBEs	IEC 62321 111/95/CDV	N.D
Cl	IEC61189-2 : 2006	< 500ppm

<b>Br</b>	<b>IEC61189-2 : 2006</b>	<b>&lt; 500ppm</b>
<b>Br+Cl</b>	<b>IEC61189-2 : 2006</b>	<b>&lt; 1000ppm</b>

### 三. CB-HFT Heat-shrinkable Tube Standard Sizes.

#### 3X

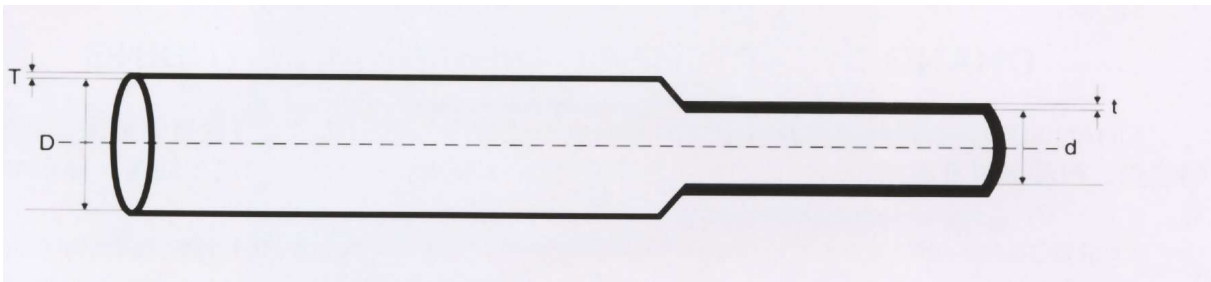
Size	As Supplied		After Recovery	
	Inside Diameter(D)	Wall-thickness( T )	Inside Diameter( d )	Wall-thickness( t )
Φ1.5	≥1.50	0.18±0.04	≤0.60	0.40±0.10
Φ3.0	≥3.00	0.20±0.05	≤1.00	0.55±0.10
Φ4.5	≥4.50	0.20±0.05	≤1.50	0.55±0.10
Φ4.8	≥4.80	0.20±0.05	≤1.60	0.55±0.10
Φ5.0	≥5.00	0.21±0.05	≤1.70	0.60±0.15
Φ6.0	≥6.00	0.22±0.05	≤2.00	0.60±0.15
Φ7.5	≥7.50	0.25±0.05	≤2.50	0.65±0.15
Φ9.0	≥9.00	0.25±0.06	≤3.00	0.70±0.15
Φ10	≥10.00	0.25±0.06	≤3.30	0.70±0.15
Φ12	≥12.00	0.25±0.06	≤4.00	0.70±0.15
Φ13	≥13.00	0.25±0.06	≤4.30	0.70±0.15
Φ15	≥15.00	0.25±0.06	≤5.00	0.70±0.15
Φ16	≥16.00	0.25±0.06	≤5.30	0.70±0.15
Φ18	≥18.00	0.30±0.07	≤6.00	0.80±0.20
Φ19	≥19.00	0.30±0.07	≤6.30	0.80±0.20
Φ20	≥20.00	0.30±0.07	≤6.70	0.80±0.20
Φ24	≥24.00	0.36±0.09	≤8.00	1.00±0.20
Φ25	≥25.00	0.36±0.09	≤8.30	1.00±0.20
Φ28	≥28.00	0.36±0.09	≤9.30	1.00±0.20
Φ30	≥30.00	0.36±0.09	≤10.00	1.00±0.20
Φ33	≥33.00	0.36±0.09	≤11.00	1.00±0.20
Φ38	≥38.00	0.42±0.10	≤12.70	1.20±0.20
Φ39	≥39.00	0.42±0.10	≤13.00	1.20±0.20
Φ50	≥50.00	0.42±0.10	≤17.00	1.30±0.20

#### 4X

Size	As Supplied		After Recovery	
	Inside Diameter( D )	Wall-thickness( T )	Inside Diameter( d )	Wall-thickness( t )
Φ6.0	6.00+0.50	0.30±0.06	≤1.50	0.90±0.10
Φ8.0	8.00+0.50	0.30±0.06	≤2.00	0.90±0.10

$\Phi 10$	10.00+0.50	0.30±0.06	≤2.50	0.90±0.10
$\Phi 12$	12.00+0.50	0.30±0.06	≤3.00	1.00±0.10
$\Phi 16$	16.00+0.50	0.30±0.06	≤4.00	1.00±0.10
$\Phi 18$	18.00+0.50	0.30±0.06	≤4.50	1.00±0.10
$\Phi 20$	20.00+0.50	0.30±0.06	≤5.00	1.00±0.10
$\Phi 24$	24.00+0.50	0.35±0.07	≤6.00	1.20±0.10
$\Phi 28$	28.00+0.50	0.35±0.07	≤7.00	1.20±0.10
$\Phi 32$	32.00+0.50	0.40±0.08	≤8.00	1.40±0.10

#### 四. HFT Heat-shrinkable Tube Drawing



**Remark:** If you want to print

**1. Printing Contents of CB-HFT type tube :**

**Printing Contents of 600V :** CVG CB-HFT TUBE E180908 & 125°C  
600V VW-1 -F- (ΦSizeH)

<b>Unit :</b> mm	<b>Date :</b> 2014/4/16	<b>Name :</b> CB-HFT Heat-shrinkable Tube	<b>No. :</b> CY/CD-HFT
Shanghai Changyuan Electronic Material Co.,Ltd.		<b>Drawed by:</b> 庞赛珍	<b>checked by :</b> 达飞腾
		<b>Approved by:</b> 卞文剑	

## CERTIFICATE

Our company halogen-free environment-friendly CB - HFT Tube is a kind of flame retardant heat shrinkable tubing, This tube does not contain of Pb, Cd, Hg, Cr+6 , PBB and PBDE, it meets RoHS requirement. The component are as follows.

ENGLISH	MOLECULAR FORMULA	FUNCTION	MAREIAL MASS(%)	CAS No.
EVA	$(\text{CH}_2-\text{CH}_2)$ $m-(\text{CH}_2-\text{CH}-\text{COOCH}_3)_n$	MAIN RESIN	50%	24937-78-8
ATH	$\text{Al}(\text{OH})_3$	FLAME TETARDANT	40%	21645-51-2
MP	$\text{P}_m\text{N}_n\text{H}_x\text{O}_y$	FLAME TETARDANT	5%	7723-14-0
Anti-oxide	$\text{C}_{73}\text{H}_{108}\text{O}_{12}$	ANTIOXIDANT	1%	6683-19-8
pigment	Toner + EVA + filling agent	COLORANT	4%	-----



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**2014-4-16**