

SUMITUBE NHR2 [UL approved 125°C rating, flame-retardant heat shrinkable no halogen tubing]

✓ RoHS directive

SUMITUBE NHR4 [UL approved 125°C rating, flame-retardant flexible heat shrinkable no halogen tubing]

✓ RoHS directive

Basic Properties

- (1) Materials : Irradiated cross-linked flexible no halogen flame-retardant polyolefin
- (2) Shrink temperature : min. 100°C
- (3) Shrink Ratio : Radial change: min. 50%
: Longitudinal change: - 5 ± 5%
- (4) Continuous Operating Temperature : -55 to 125°C

Features

- (1) UL approved
- (2) Flame-retardant with no halogen used

Specification/Approvals

NHR2
UL224

File No. E48762
Catalog No. Sumitube NHR2
Rating temperature: 125°C
Rating voltage: 600V
Flammability: VW-1

NHR4
UL224

File No. E75077
Catalog No. Sumitube NHR4
Rating temperature: 125°C
Rating voltage: 300V
Flammability: VW-1

Flammability rating (-F-) test registration No.: F-SPE3-001~F-SPE3-003

Marking on the surface

NHR2

125°C VW-1 SUMITUBE NHR2 -F-(size)

NHR4

125°C VW-1 SUMITUBE NHR4 -F-(size)

Application

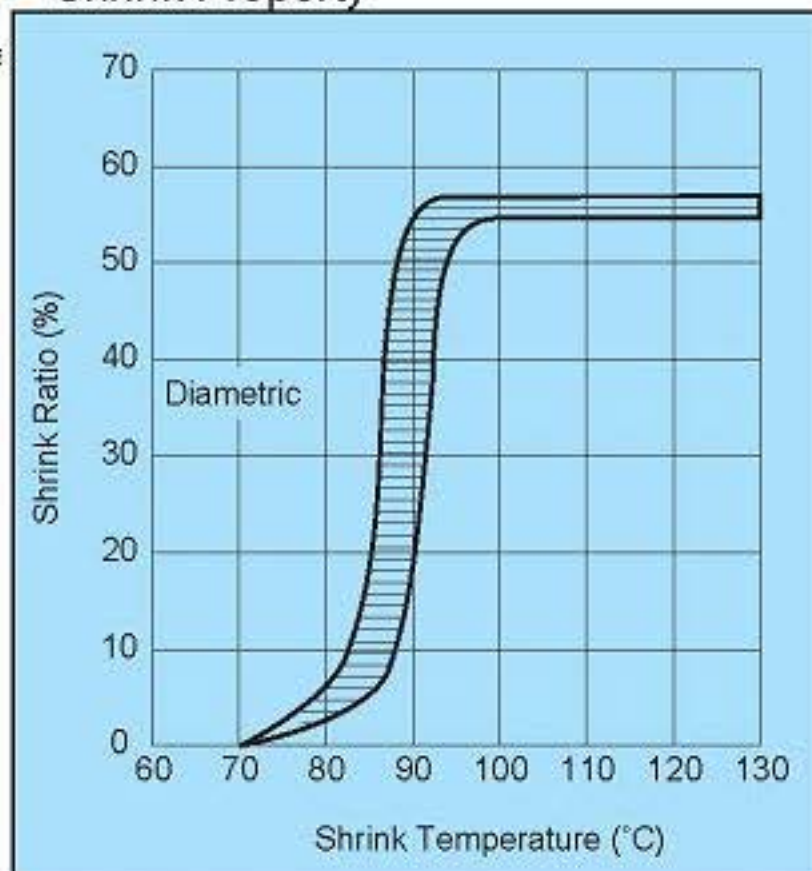
- (1) Insulation, protection and reinforcement for termination and joints of electric wire
- (2) Colour identification and bundling for electric wires
- (3) Insulation and protection for resistor and condenser

Colours

Black, White Pink, Green, Blue, Yellow, Gray

Properties [UL224]

Shrink Property



VALCONTM
QUALITY VALUE COMPONENTS

Properties	Items	Requirements	Typical values*1
Mechanical	Tensile strength (before aging)	min. 10.4MPa	11.9MPa
	Tensile strength (after aging)	158°Cx 7 days, min. 7.3MPa	11.5MPa
	Elongation (before aging)	min. 200%	510%
	Elongation (after aging)	158°Cx 7 days, min. 100%	460%
	Heat shock	250°Cx 4 hours, no crack	pass
	Cold bend	-30°Cx 1 hour, no crack	pass
Electrical	Voltage resistance(before aging)	AC2.5kV x 60 sec. no breakdown	pass
	Voltage resistance(after aging)	158°C x 7 days, AC2.5kV x 60 sec., no breakdown	pass
	Dielectric breakdown (before aging)	min. AC2.5kV	16.0kv
	Dielectric breakdown(after aging)	158°Cx 7 days, min. 50% of original and min. AC2.5kV	pass
	Volume resistivity	min. 1.0 x 10 ¹⁴ Ω-cm	4.0x10 ¹⁵ Ω-cm
Chemical	Corrosion against bare copper	158°C x 7 days, no corrosion after leaving under humidity 95%, 23°C x 24 hours	pass
	Stability against copper	158°C x 7 days, elongation min. 100% after leaving under humidity 95%, 23°C x 24 hours	380%
	Flammability	Flame-retardant, pass VW-1	pass

*1: For reference use only

Sizes

[SUMITUBE NHR2]

Nominal size(mm)	Supplied ID(mm)		Recovered ID(mm)		Unit Length(m)
	Inside diameter	Wall thickness(nom)	Inside diameter(max)	Wall thickness(min)	
1.0 x 0.20	1.4 ± 0.2	0.20	0.50	0.33	200
1.5 x 0.20	2.0 ± 0.2	0.20	0.75	0.36	200
2.0 x 0.20	2.5 ± 0.2	0.20	1.00	0.44	200
2.5 x 0.25	3.0 ± 0.2	0.25	1.25	0.44	200
3.0 x 0.25	3.5 ± 0.3	0.25	1.50	0.44	200
3.5 x 0.25	4.0 ± 0.3	0.25	1.75	0.44	200
4.0 x 0.25	4.5 ± 0.3	0.25	2.00	0.44	200
5.0 x 0.25	5.4 ± 0.3	0.25	2.50	0.56	100
6.0 x 0.25	6.4 ± 0.4	0.25	3.00	0.56	100
7.0 x 0.25	7.4 ± 0.4	0.25	3.50	0.56	50
8.0 x 0.25	8.4 ± 0.4	0.25	4.00	0.56	50
9.0 x 0.25	9.4 ± 0.4	0.25	4.50	0.56	50
10.0 x 0.25	10.4 ± 0.4	0.25	5.00	0.56	50
11.0 x 0.25	11.4 ± 0.4	0.25	5.50	0.56	50
12.0 x 0.25	12.4 ± 0.4	0.25	6.00	0.56	50
13.0 x 0.30	13.5 ± 0.4	0.30	6.50	0.69	50
14.0 x 0.30	14.5 ± 0.4	0.30	7.00	0.69	50
15.0 x 0.30	15.5 ± 0.5	0.30	7.50	0.69	50
16.0 x 0.30	16.8 ± 0.5	0.30	8.00	0.69	50
18.0 x 0.35	18.7 ± 0.5	0.35	9.00	0.77	50
20.0 x 0.35	21.2 ± 0.6	0.35	10.00	0.77	50
22.0 x 0.40	23.2 ± 0.6	0.40	11.00	0.77	50
25.0 x 0.40	26.1 ± 0.8	0.40	12.50	0.87	50
28.0 x 0.50	29.0 ± 1.0	0.50	14.00	0.87	50
30.0 x 0.50	32.0 ± 1.0	0.50	15.00	0.87	50

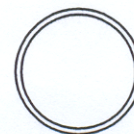
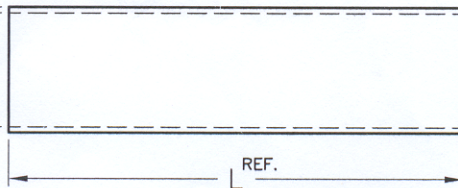
Longitudinal change: -5 ± 5%

[SUMITUBE NHR4]

Nominal size(mm)	Supplied ID(mm)		Recovered ID(mm)		Unit Length(m)
	Inside diameter	Wall thickness(nom)	Inside diameter(max)	Wall thickness(min)	
1.0 x 0.10	1.4 ± 0.2	0.10	0.50	0.20	200
1.5 x 0.10	1.9 ± 0.2	0.10	0.75	0.20	200
2.0 x 0.10	2.3 ± 0.2	0.10	1.00	0.20	200
2.5 x 0.15	2.9 ± 0.2	0.15	1.25	0.25	200
3.0 x 0.15	3.3 ± 0.3	0.15	1.50	0.25	200
3.5 x 0.15	3.8 ± 0.3	0.15	1.75	0.25	200
4.0 x 0.15	4.4 ± 0.3	0.15	2.00	0.25	200
5.0 x 0.15	5.5 ± 0.3	0.15	2.50	0.25	100
6.0 x 0.15	6.5 ± 0.4	0.15	3.00	0.28	100
7.0 x 0.15	7.5 ± 0.4	0.15	3.50	0.28	50
8.0 x 0.15	8.5 ± 0.4	0.15	4.00	0.28	50
9.0 x 0.15	9.5 ± 0.4	0.15	4.50	0.28	50
10.0 x 0.15	10.5 ± 0.5	0.15	5.00	0.28	50

Longitudinal change: -5 ± 5%

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REVISIONS			
REV	DESCRIPTION	DATE	BY

PART NO.	DIMENSIONS BEFORE SHRINKAGE		DIMENSIONS AFTER SHRINKAGE		PACKAGE (L)
	INSIDE DIA	THICKNESS	INSIDE DIA	THICKNESS	M/1 ROLL
∅1.0	1.3±0.3	0.2	0.5	0.33	200
∅1.5	2.0±0.3	0.2	0.75	0.36	
∅2.0	2.5±0.3	0.2	1.0	0.44	
∅2.5	3.0±0.3	0.25	1.25	0.44	
∅3.0	3.5±0.3	0.25	1.5	0.44	
∅3.5	4.0±0.3	0.25	1.75	0.44	
∅4.0	4.5±0.3	0.25	2.0	0.44	100
∅5.0	5.4±0.3	0.25	2.5	0.56	
∅6.0	6.4±0.4	0.25	3.0	0.56	
∅7.0	7.4±0.4	0.25	3.5	0.56	50
∅8.0	8.4±0.4	0.25	4.0	0.56	
∅9.0	9.4±0.4	0.25	4.5	0.56	
∅10.0	10.4±0.4	0.25	5.0	0.56	
∅11.0	11.4±0.4	0.25	5.5	0.56	
∅12.0	12.4±0.4	0.25	6.0	0.56	
∅13.0	13.5±0.4	0.3	6.5	0.69	
∅14.0	14.5±0.4	0.3	7.0	0.69	
∅15.0	15.5±0.5	0.3	7.5	0.69	
∅16.0	16.8±0.5	0.3	8.0	0.69	
∅18.0	18.7±0.5	0.35	9.0	0.77	
∅20.0	21.2±0.6	0.35	10.0	0.77	
∅22.0	23.2±0.6	0.4	11.0	0.77	
∅25.0	26.1±0.8	0.4	12.5	0.87	
∅28.0	29.0±1.0	0.5	14.0	0.87	
∅30.0	32.0±1.0	0.5	14.8	0.87	
∅32.0	34.0±1.0	0.5	16.0	0.87	
∅35.0	37.0±1.0	0.5	17.5	0.87	
∅40.0	43.0±1.5	0.5	20.0	0.97	
∅50.0	53.0±2.0	0.5	24.7	0.97	