

Single Wall Tubing

PRODUCT NAME	SHRINK RATIO	DESCRIPTION	OPERATING TEMPERATURE		TYPICAL APPLICATIONS
			MAX °C	MIN	
→ DERAY®-HB	2:1	Economical, General Purpose, Flexible Polyolefin	105	-55	Abrasion protection, insulation of electrical or mechanical components
→ DERAY®-LSB	2:1	Very Low Shrink Temperature, Flexible Polyolefin	105	-45	Thermally sensitive electronic components, High volume production lines
→ DERAY®-H	2:1	Multipurpose tubing, Flexible Polyolefin	125	-55	Cable insulating, marking and bundling, mechanical protection
→ DERAY®-I	2:1	Multipurpose tubing, Flexible Polyolefin	135	-55	Insulation, corrosion and mechanical protection, bundling, marking, bending protection, strain relief
→ DERAY®-ITW	2:1	Ultra Thin Wall, Very Flexible Polyolefin	135	-55	Insulation & protection of splices in very flexible cables, High volume production lines
→ DERAY®-I3000	3:1	High Shrink Ratio, Flexible Polyolefin	135	-55	Insulation & protection of objects with large diameter variations
→ DERAY®-IGY	3:1	Striped Green & Yellow, High Shrink Ratio, Flexible Polyolefin	135	-55	Insulation & marking of earthing conductors
→ CZT	2:1	Zero Halogen, Flexible Polyolefin	105	-40	Low smoke generation for use in confined areas such as underground transportation systems, military & aerospace applications
→ BEX 100	2:1	Marker Tubing, Flexible Polyolefin	135	-55	Marking & printing purposes
→ CPX876	2:1	High Performance, Flexible Polyolefin	135	-55	Industrial, military, aerospace & automotive applications requiring low recovery temperature & high flame retardancy

→ Heat Shrink Tubing Products



Single Wall Products

Single Wall heat shrinkable tubing is used in a variety of applications in the electronics, automotive, military & aerospace sector including:

- Mechanical Protection
- Abrasion Protection
- Strain Relief
- Moisture Protection
- Cable Insulation
- Marking & Bundling of electronic components

→ **Product Selection Chart**

DERAY®-HB

Economical, non self-extinguishing,
halogen free heat shrink tubing

Features

- Flexible
- Halogen free alternative to PVC
- Continuous Operating
Temperature: -55°C to 105°C
- Shrink Temperature: 125°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Clear		Lengths 1.22 m pcs.
mm	IN	mm	mm	Spool Length m	Style*	Spool Length m	Style*	
1,2	3/64	0,6	0,40	300	o	150	o	-
1,6	1/16	0,8	0,40	300	o	150	o	-
2,4	3/32	1,2	0,50	300	o	150	o	-
3,2	1/8	1,6	0,50	300	o	150	o	-
4,8	3/16	2,4	0,50	300	o	75	o	-
6,4	1/4	3,2	0,60	300	o	75	o	-
9,5	3/8	4,8	0,60	150	o	75	o**	-
12,7	1/2	6,4	0,60	100	o	50	-	-
19,0	3/4	9,5	0,80	50	-	30	-	-
25,4	1	12,7	0,90	50	-	30	-	-
38,1	1 1/2	19,0	1,00	50	-	30	-	-
50,8	2	25,4	1,10	50	-	30	-	-

* o = airfilled or oval ** black only, other colours flattened -- = flattened

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	IEC 60684-2	17,0 MPa
Elongation	IEC 60684-2	500%
Longitudinal Change	ASTM-D 2671	6% max.
Secant Modulus	ASTM-D 882	170 MPa max.
Specific Gravity	ASTM-D 792, A-I	0,95 g/cm ³
Elongation after Heat Aging (168 hrs at 150°C)	IEC 811-1-2	470%
Tensile Strength after Heat Aging (168 hrs at 150°C)	IEC 811-1-2	16 MPa
Elongation after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	480%
Tensile Strength after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	16 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C
Flammability	FMVSS302	passed

Standard Colours	Special Colours
black clear	On Request

Electrical

Property	Test Method	Typical Performance
Dielectric Strength	VDE 0303 Part 2	20 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁴ Ω x cm

Chemical

Property	Test Method	Typical Performance
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive
Chemical Resistance		good
Water Absorption	VDE 0472	0,30%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-HB 1/2" black, 2.500 mtr., 100m-spool, unprinted

→ **Product Selection Chart**

DERAY®-LSB

Low shrink temperature tubing,
ideal for covering sensitive
electronic components

Features

- Flexible
- Ideal for high volume production lines
- Continuous Operating Temperature: -45°C to 125°C
- Shrink Temperature: 70°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Special colours		Lengths 1.22 m pcs.
mm	IN	mm	mm	Spool Length	Style*	Spool Length	Style*	
3,2	1/8	1,6	0,50	300	o	150	o	-
4,8	3/16	2,4	0,50	300	o	75	o	-
6,4	1/4	3,2	0,60	300	o	75	o	-
9,5	3/8	4,8	0,60	150	o	75	o**	-
12,7	1/2	6,4	0,60	100	o	50	-	-
16,0	5/8	8,0	0,60	100	-	50	-	-
19,0	3/4	9,5	0,80	50	-	30	-	-
25,4	1	12,7	0,90	50	-	30	-	-

* o = airfilled or oval ** black only, other colours flattened - = flattened

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	IEC 60684-2	14 MPa
Elongation	IEC 60684-2	420%
Longitudinal Change	ASTM-D 2671	6% max.
Secant Modulus	ASTM-D 882	40 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,2 g/cm ³
Elongation after Heat Aging (168 hrs at 158°C)	UL 224	390%
Tensile Strength after Heat Aging (168 hrs at 158°C)	UL 224	11 MPa
Elongation after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	450%
Tensile Strength after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	13 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -45°C
Flammability	FMVSS302	passed

Standard Colours	Special Colours
black ■	On Request

Electrical

Property	Test Method	Typical Performance
Dielectric Strength	VDE 0303 Part 2	25 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁴ Ω x cm

Chemical

Property	Test Method	Typical Performance coloured
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive
Chemical Resistance		good
Water Absorption	VDE 0472	0,20%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-LSB 1/2" black, 2.500 mtr., 100m-spool, unprinted

→ **Product Selection Chart**

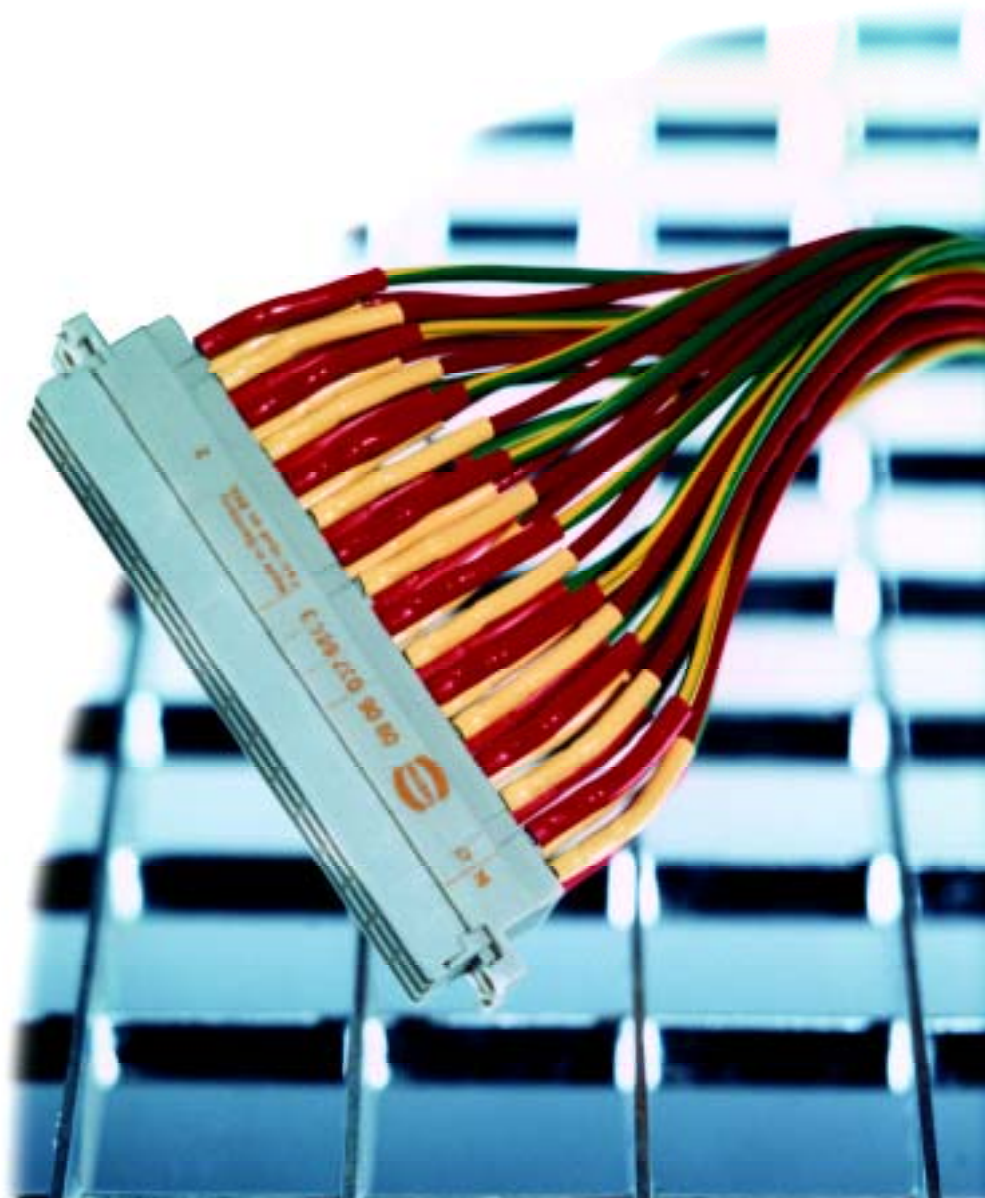
DERAY®-H

Flame retardant, multi-purpose
heat shrink tubing



Features

- Flexible
- Suitable for various applications
- Continuous Operating
Temperature: -55°C to 125°C
- Shrink Temperature: 110°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Coloured		Lengths
mm	IN	mm	mm	Spool Length	Style*	Spool Length	Style*	1.22 m
				m		m		pcs.
1,2	3/64	0,6	0,40	300	o	150	o	25
1,6	1/16	0,8	0,40	300	o	150	o	25
2,4	3/32	1,2	0,50	300	o	150	o	25
3,2	1/8	1,6	0,50	300	o	150	o	25
4,8	3/16	2,4	0,50	300	o	75	o	25
6,4	1/4	3,2	0,60	300	o	75	o	10
9,5	3/8	4,8	0,60	150	o	75	o**	10
12,7	1/2	6,4	0,60	100	o	50	-	10
16,0	5/8	8,0	0,60	100	-	-	-	10
19,0	3/4	9,5	0,80	50	-	30	-	10
25,4	1	12,7	0,90	50	-	30	-	10
31,8	1 1/4	15,9	0,90	50	-	30	-	-
38,0	1 1/2	19,0	1,00	50	-	30	-	-
50,8	2	25,4	1,10	50	-	30	-	-

* o = airfilled or oval ** black only, other colours flattened - = flattened

Technical Data

Physical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Tensile Strength	IEC 60684-2	15 MPa	19 MPa
Elongation	IEC 60684-2	450%	530%
Longitudinal Change	ASTM-D 2671	± 10% max.	± 10% max.
Secant Modulus	ASTM-D 882	175 MPa max.	175 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,25 g/cm ³	1,00 g/cm ³
Elongation after Heat Aging (168 hrs at 158°C)	UL 224	300%	490%
Tensile Strength after Heat Aging (168 hrs at 158°C)	UL 224	12 Mpa	18 MPa
Elongation after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	400%	500%
Tensile Strength after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	13 MPa	18 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C	does not break at -55°C
Flammability	UL 224 (coloured) FMVSS 302 (clear)	flame retardant	passed

Standard Colours							Special Colours
black	clear*	red	yellow	blue	white	green	On Request
							

*clear not UL or CSA listed

Electrical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Dielectric Strength	VDE 0303 Part 2	24 kV/mm	26 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁵ Ω x cm	10 ¹⁵ Ω x cm

Chemical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive	non-corrosive
Chemical Resistance		good	good
Water Absorption	VDE 0472	0,15%	0,30%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-H 1/4" black, 2.100 mtr., 300m-spool, unprinted

→Product Selection Chart

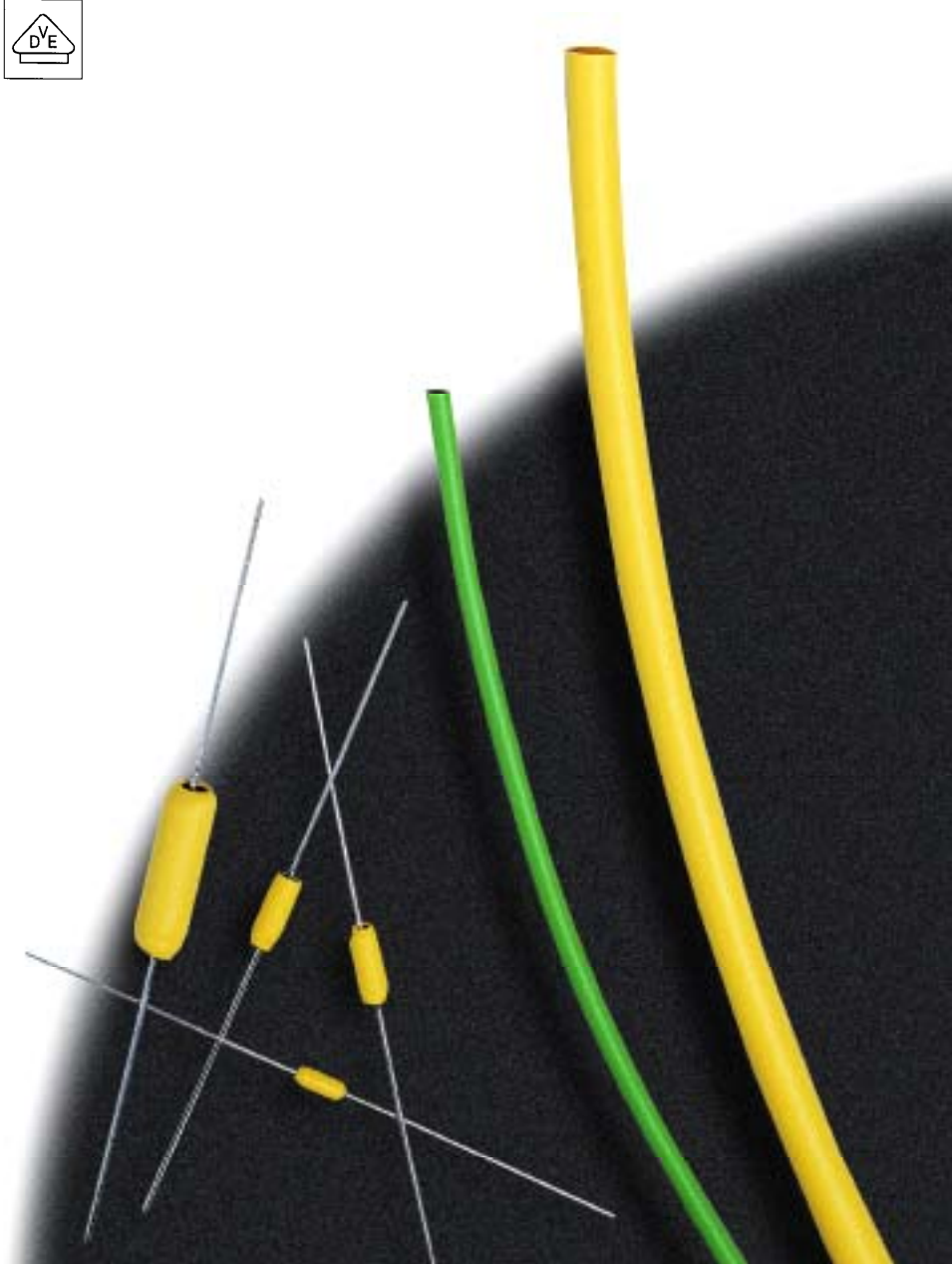
DERAY®-I

Universal heat shrink tubing with excellent physical and mechanical properties



Features

- Flexible
- Flame Retardant
- Meets MIL - DTL - 23053/5 class 1+2
- Continuous Operating Temperature: -55°C to 135°C
- Shrink Temperature: 90°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Coloured		Lengths
mm	IN	mm	mm	Spool Length	Style*	Spool Length	Style*	1.22 m
				m		m		pcs.
1,2	3/64	0,6	0,40	300	o	150	o	25
1,6	1/16	0,8	0,40	300	o	150	o	25
2,4	3/32	1,2	0,50	300	o	150	o	25
3,2	1/8	1,6	0,50	300	o	150	o	25
4,8	3/16	2,4	0,50	300	o	75	o	25
6,4	1/4	3,2	0,60	300	o	75	o	10
9,5	3/8	4,8	0,60	150	o	75	o**	10
12,7	1/2	6,4	0,60	100	o	50	-	10
16,0	5/8	8,0	0,60	100	-	50	-	10
19,0	3/4	9,5	0,80	50	-	30	-	10
25,4	1	12,7	0,90	50	-	30	-	10
31,8	1 1/4	15,9	0,90	50	-	30	-	-
38,0	1 1/2	19,0	1,00	50	-	30	-	-
51,0	2	25,4	1,10	50	-	30	-	-
76,0	3	38,0	1,30	25	-	15	-	-
101,6	4	50,8	1,40	25	-	15	-	-

* o = airfilled or oval ** black only, other colours flattened -- = flattened

Technical Data

Physical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Tensile Strength	IEC 60684-2	17 MPa	20 MPa
Elongation	IEC 60684-2	500%	550%
Longitudinal Change	ASTM-D 2671	± 5% max.	± 5% max.
Secant Modulus	ASTM-D 882	175 MPa max.	175 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,3 g/cm ³	1,0 g/cm ³
Elongation after Heat Aging (168 hrs at 175°C)	ASTM-D 2671	300%	500%
Tensile Strength after Heat Aging (168 hrs at 175°C)	ASTM-D 2671	13 Mpa	18 MPa
Heat Shock (4 hrs at 250°C)	ASTM-D 2671	No cracking or flowing	No cracking or flowing
Tensile Strength after Heat Shock (4 hrs at 250°C)	IEC 811-1-3	19 MPa	15 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C	does not break at -55°C
Flammability	UL 224 (coloured) FMVSS 302 (clear)	flame retardant	passed

Standard Colours						Special Colours - On request				
black	clear*	red	yellow	blue	white	green	brown	orange	grey	violet

*clear not UL or CSA listed

Electrical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Dielectric Strength	VDE 0303 Part 2	24 kV/mm	24 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁶ Ω x cm	10 ¹⁶ Ω x cm

Chemical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive	non-corrosive
Chemical Resistance		good	good
Water Absorption	VDE 0472	0,20%	0,20%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-I 1/2" black, 2.500 mtr., 100m-spool, unprinted

→ **Product Selection Chart**

DERAY®-ITW

Ultra thin wall, very flexible
heat shrink tubing

Features

- Very flexible
- Flame retardant
- Continuous Operating
Temperature: -55°C to 135°C
- Shrink Temperature: 90°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS		
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black & Clear Spool Length	Style*	Lengths 1.22 m
mm	IN	mm	mm	m		pcs.
2,5	-	0,8	0,30	300	o	-
4,0	-	1,6	0,30	300	o	-
5,6	-	2,4	0,30	300	o	-
8,1	-	3,2	0,35	150	o	-
11,0	-	4,8	0,35	150	o	-
15,0	-	6,4	0,35	100	-	-
20,0	-	9,5	0,45	50	-	-
26,0	-	12,7	0,50	50	-	-

* o = airfilled or oval - = flattened

Technical Data

Physical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Tensile Strength	IEC 60684-2	17 MPa	20 MPa
Elongation	IEC 60684-2	500%	550%
Longitudinal Change	ASTM-D 2671	± 10% max.	± 10% max.
Secant Modulus	ASTM-D 882	175 MPa max.	175 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,3 g/cm ³	1,0 g/cm ³
Elongation after Heat Aging (168 hrs at 175°C)	ASTM-D 2671	300%	500%
Tensile Strength after Heat Aging (168 hrs at 175°C)	ASTM-D 2671	13 MPa	18 MPa
Elongation after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	480%	530%
Tensile Strength after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	15 MPa	19 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C	does not break at -55°C
Flammability	UL 224 (coloured) FMVSS 302 (clear)	flame retardant	passed

Standard Colours	Special Colours - On Request
clear	black

Electrical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Dielectric Strength	VDE 0303 Part 2	24 kV/mm	24 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁶ Ω x cm	10 ¹⁶ Ω x cm

Chemical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive	non-corrosive
Chemical Resistance		good	good
Water Absorption	VDE 0472	0,20%	0,20%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-ITW 8,1mm clear, 1.500 mtr., 150m-spool, unprinted

→ **Product Selection Chart**

DERAY®-I 3000

High shrink ratio, flexible heat shrink tubing



Features

- Flexible
- High Shrink Ratio
- Flame retardant
- Resistant to common fluids and solvents
- Meets MIL-DTL-23053/5 class 1+2
- Continuous Operating Temperature: -55°C to 135°C
- Shrink Temperature: 90°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Coloured		Lengths
mm	IN	mm	mm	Spool Length	Style*	Spool Length	Style*	1.22 m
				m		m		pcs.
1,6	1/16	0,5	0,45	300	o	150	o	25
3,2	1/8	1,0	0,55	300	o	150	o	25
4,8	3/16	1,5	0,60	300	o	75	o	25
6,4	1/4	2,0	0,65	300	o	75	o	10
9,5	3/8	3,0	0,75	150	o	75	o	10
12,7	1/2	4,0	0,75	100	o	50	-	10
19,0	3/4	6,0	0,85	50	-	30	-	10
25,4	1	8,0	1,00	50	-	30	-	10
39,0	1 1/2	13,0	1,15	50	-	30	-	-

* o = airfilled or oval - = flattened

Technical Data

Physical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Tensile Strength	IEC 60684-2	17 MPa	20 MPa
Elongation	IEC 60684-2	500%	550%
Longitudinal Change	ASTM-D 2671	± 10% max.	± 10% max.
Secant Modulus	ASTM-D 882	175 MPa max.	175 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,3 g/cm ³	1,0 g/cm ³
Elongation after Heat Aging (168 hrs at 175°C)	ASTM-D 2671	300%	500%
Tensile Strength after Heat Aging (168 hrs at 175°C)	ASTM-D 2671	13 MPa	18 MPa
Elongation after Heat Shock (4 hrs at 250°C)	ASTM-D 2671	No cracking or flowing	No cracking or flowing
Tensile Strength after Heat Shock (4 hrs at 250°C)	IEC 811-1-3	19 MPa	15 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C	does not break at -55°C
Flammability	UL 224 (coloured) FMVSS 302 (clear)	flame retardant	passed

Standard Colours					Special Colours - On Request					
black	clear*	red	yellow	blue	white	brown	orange	green	violet	grey

*clear not UL or CSA listed

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-I 3000 6/2 black, 1.800 mtr., 300m-spool, unprinted

Electrical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Dielectric Strength	VDE 0303 Part 2	24 kV/mm	24 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁶ Ω x cm	10 ¹⁶ Ω x cm

Chemical

Property	Test Method	Typical Performance coloured	Typical Performance clear
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive	non-corrosive
Chemical Resistance		good	good
Water Absorption	VDE 0472	0,20%	0,20%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

→ **Product Selection Chart**

DERAY®-IGY

Dual colour, flexible, non-meltable, quick shrinking heat shrink tubing

DEF
STAN
59/97

Features

- Flexible
- High shrink ratio
- Flame retardant
- Resistant to common fluids and solvents
- Continuous Operating Temperature: -55°C to 135°C
- Shrink Temperature: 90°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS		
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Green-Yellow Spool Length	Style*	Lengths 1.22 m
mm	IN	mm	mm	m		pcs.
3,2	1/8	1,0	0,55	150	o	25
4,8	3/16	1,5	0,60	75	o	25
6,4	1/4	2,0	0,65	75	o	10
9,5	3/8	3,0	0,75	75	—	10
12,7	1/2	4,0	0,75	50	—	10
19,0	3/4	6,0	0,85	30	—	10
25,4	1	8,0	1,00	30	—	10
39,0	1 1/2	13,0	1,15	30	—	-

* o = airfilled or oval — = flattened

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	IEC 60684-2	15 MPa
Elongation	IEC 60684-2	450%
Longitudinal Change	ASTM-D 2671	± 10% max.
Secant Modulus	ASTM-D 882	175 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,3 g/cm ³
Elongation after Heat Aging (168 hrs at 175°C)	UL 224	300%
Tensile Strength after Heat Aging (168 hrs at 175°C)	UL 224	12 Mpa
Elongation after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	400%
Tensile Strength after Heat Shock (4 hrs at 200°C)	IEC 811-1-2	14 MPa
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C
Flammability	UL 224	flame retardant

Standard Colours	Special Colours
green-yellow	Not Available

Electrical

Property	Test Method	Typical Performance
Dielectric Strength	VDE 0303 Part 2	24 kV/mm
Volume Resistivity	VDE 0303 Part 3	10 ¹⁶ Ω x cm

Chemical

Property	Test Method	Typical Performance
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive
Chemical Resistance		good
Water Absorption	VDE 0472	0,20%

Printability	Hot stamp	Ink jet	Offset
	very good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: DERAY®-IGY 19/6 green-yellow, 300 mtr., 30m-spool, unprinted

→ Product Selection Chart

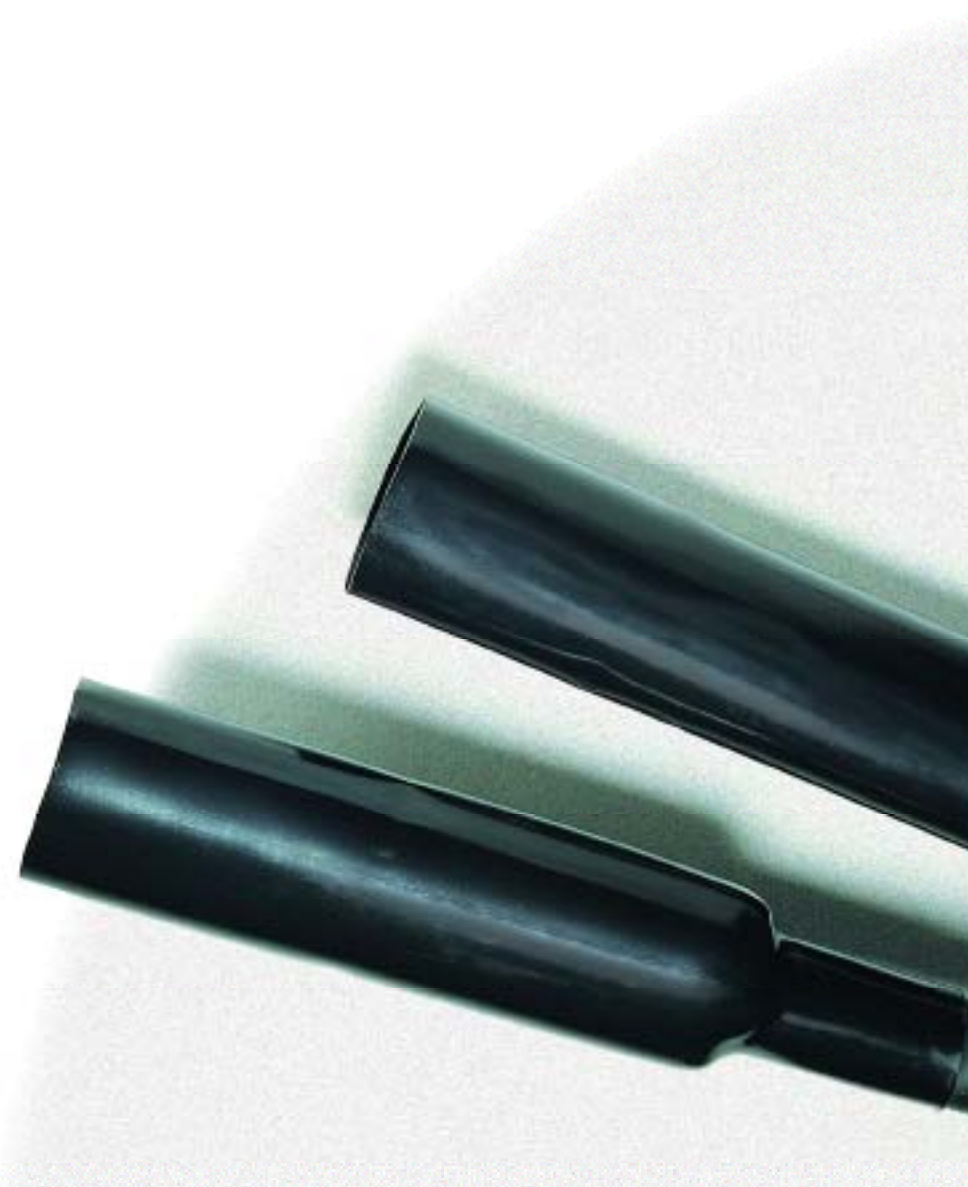
CZT 200

Zero halogen, flexible
heat shrink tubing

DEF
STAN
59/97

Features

- Flexible
- Zero halogen
- Flame retardant
- Low smoke generation at burnings
- Recommended for use with zero halogen wires & cables
- Meets DEF STAN 59-97, issue 3, type 8
- Continuous Operating Temperature: -40°C to 105°C
- Shrink Temperature: 115°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Coloured		Lengths
mm	IN	mm	mm	Spool Length	Style*	Spool Length	Style*	1.22 m
				m		m		pcs.
1,6	1/16	0,8	0,45	300	o	150	o	-
2,4	3/32	1,2	0,51	300	o	150	o	-
3,2	1/8	1,6	0,51	300	o	150	o	-
4,8	3/16	2,4	0,51	300	o	75	o	-
6,4	1/4	3,2	0,64	300	o	75	o	-
9,5	3/8	4,8	0,64	150	o	75	o**	-
12,7	1/2	6,4	0,64	100	o	50	-	-
16,0	5/8	8,0	0,64	100	-	50	-	-
19,0	3/4	9,5	0,76	50	-	30	-	-
25,4	1	12,7	0,89	50	-	30	-	-
31,8	1 1/4	16,0	0,89	50	-	30	-	-
38,0	1 1/2	19,0	1,02	50	-	30	-	-
51,0	2	25,4	1,14	50	-	30	-	-
76,0	3	38,0	1,27	25	-	15	-	-
101,6	4	50,8	1,40	25	-	15	-	-

* o = airfilled or oval ** black only, other colours flattened - = flattened

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	IEC 60684-2	10 MPa
Elongation	IEC 60684-2	200%
Longitudinal Change	ASTM-D 2671	± 10% max.
Secant Modulus	ASTM-D 882	130 MPa max.
Specific Gravity	ISO/R 1183	1,45 g/cm ³
Elongation after Heat Aging (168 hrs at 158°C)	ISO 37	150%
Elongation after Heat Shock (4 hrs at 150°C)	ASTM-D 2671	100% min.
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -40°C
Flammability	ASTM-D 635	flame retardant

Standard Colours	Special Colours
black ■ white ■ yellow ■	On Request

Electrical

Property	Test Method	Typical Performance
Dielectric Strength	IEC 243	24 kV/mm
Volume Resistivity	ASTM D 2671	10 ¹⁶ Ω x cm

Chemical

Property	Test Method	Typical Performance
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive
Chemical Resistance		good to excellent
Water Absorption	ASTM-D570	0,20%

Printability	Hot stamp	Ink jet	Offset
	good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: CZT 200 1/2" black, 2.000 mtr., 100m-spool, unprinted

→ **Product Selection Chart**

BEX 100

Flexible heat shrink marker tubing

Features

- Flexible
- Flame retardant
- Very suitable for printing with thermal transfer and dot matrix printers
- Smudge resistant surface
- Continuous Operating Temperature: -55°C to 135°C
- Shrink Temperature: 120°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS		
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Yellow + White SpoolLength	Style*	Lengths 1,22 m
mm	IN	mm	mm	m		
2,4	3/32	1,2	0,50	200	o	-
3,2	1/8	1,6	0,50	150	o	-
4,8	3/16	2,4	0,50	150	o	-
6,4	1/4	3,2	0,60	150	o	-
9,5	3/8	4,8	0,60	100	-	-
12,7	1/2	6,4	0,60	100	-	-
19,0	3/4	9,5	0,80	100	-	-
25,4	1	12,7	0,90	75	-	-
38,1	1 1/2	19,0	1,00	50	-	-

* o = airfilled or oval - flattened

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ISO 37	18 MPa
Elongation	ISO 37	400%
Longitudinal Change	ASTM-D 2671	±5 % max.
Secant Modulus	ASTM-D 882	130 MPa
Specific Gravity	ISO/R 1183	1,34 g/cm ³
Elongation after Heat Aging (168 hrs at 175°C)	ISO 37	350%
Heat Shock (4 hrs at 250°C)	ASTM-D 2671	No cracking, dripping or flowing
Low Temperature Flexibility	ASTM-D 2671	does not break at -55°C
Flammability	ASTM-D 2671	Flame retardant

Standard Colours	Special Colours
yellow  white 	On Request

Electrical

Property	Test Method	Typical Performance
Dielectric Strength	IEC 243	20 kV/mm

Chemical

Property	Test Method	Typical Performance
Chemical Resistance	ISO 1817, ISO 37, MIL-I 23053	good
Water Absorption	ASTM-D 570	0,20%

Printability	Thermal transfer	Dot Matrix
	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: BEX 100 1/2" yellow, 1.000 mtr., 100m-spool, unprinted

→ **Product Selection Chart**

CPX 876

Flexible, highly flame retardant heat shrink tubing



Features

- Highly flame retardant, UL-224 VW-1 & CSA OFT
- Flexible
- Resistant to common fluids and solvents
- Meets MIL-DTL-23053/5, class 3
- Continuous Operating Temperature: -55°C to 135°C
- Shrink Temperature: 110°C



Dimensions

EXPANDED		RECOVERED		DELIVERY UNITS				
INTERNAL DIAMETER (MIN) D		INTERNAL DIAMETER (MAX) D	WALL THICKNESS (NOM) w	Black		Black & Coloured		Lengths
mm	IN	mm	mm	Spool Length	Style*	Spool Length	Style*	1.22 m
				m		m		pcs.
1,2	3/64	0,6	0,45	300	o	150	o	-
1,6	1/16	0,8	0,45	300	o	150	o	-
2,4	3/32	1,2	0,50	300	o	150	o	-
3,2	1/8	1,6	0,50	300	o	150	o	-
4,8	3/16	2,4	0,50	300	o	75	o	-
6,4	1/4	3,2	0,65	300	o	75	o	-
9,5	3/8	4,8	0,65	150	o	75	-	-
12,7	1/2	6,4	0,65	100	o	50	-	-
16,0	5/8	8,0	0,65	100	-	50	-	-
19,0	3/4	9,5	0,75	50	-	30	-	-
25,4	1	12,7	0,90	50	-	30	-	-
31,8	1 1/4	15,9	0,90	50	-	30	-	-
38,0	1 1/2	19,0	1,00	50	-	30	-	-
51,0	2	25,4	1,15	50	-	30	-	-
76,0	3	38,0	1,25	25	-	15	-	-
101,6	4	50,8	1,40	25	-	15	-	-

* o = airfilled or oval - = flattened

Technical Data

Physical

Property	Test Method	Typical Performance
Tensile Strength	ISO 37	17 MPa
Elongation	ISO 37	400%
Longitudinal Change	ASTM-D 2671	± 5% max.
Secant Modulus	ASTM-D 882	175 MPa max.
Specific Gravity	ASTM-D 792, A-I	1,4 g/cm ³
Elongation after Heat Aging (168 hrs at 175°C)	ISO 37	400%
Elongation after Heat Shock (4 hrs at 250°C)	ASTM-D 2671	no dripping, flowing or ripping
Low Temperature Flexibility	ASTM-D 2671 Meth. C	does not break at -55°C
Flammability	UL 224, VW-1	flame retardant

Electrical

Property	Test Method	Typical Performance
Dielectric Strength	IEC 243	20 kV/mm
Volume Resistivity	ASTM-D 2671	10 ¹⁶ Ω x cm

Chemical

Property	Test Method	Typical Performance
Corrosive Action	ASTM-D 2671 Meth. A	non-corrosive
Copper Compatibility	ASTM-D 2671 Meth. B	non-corrosive
Chemical Resistance		good to excellent
Water Absorption	ASTM-D 570	0,50%

Standard Colours	Special Colours - On request								
black	red	blue	white	yellow	brown	green	orange	grey	violet

Printability	Hot stamp	Ink jet	Offset
	good	good	good

Ordering: **Specify the product name** plus each of the following options: 1) Size 2) Colour 3) Total Quantity + Delivery Unit 4) Printing Options
For example: CPX876 3/8" black, 1.500 mtr., 150m-spool, unprinted