

**Fax-on-Demand:** (800) 260-9099  
(650) 361-6523

FAX ID	Description
2260	Data sheet

Before ordering check with factory for most current data.

# XFFR and ZHS

Halogen-free, flame-retardant, heat-shrinkable tubing

## Applications

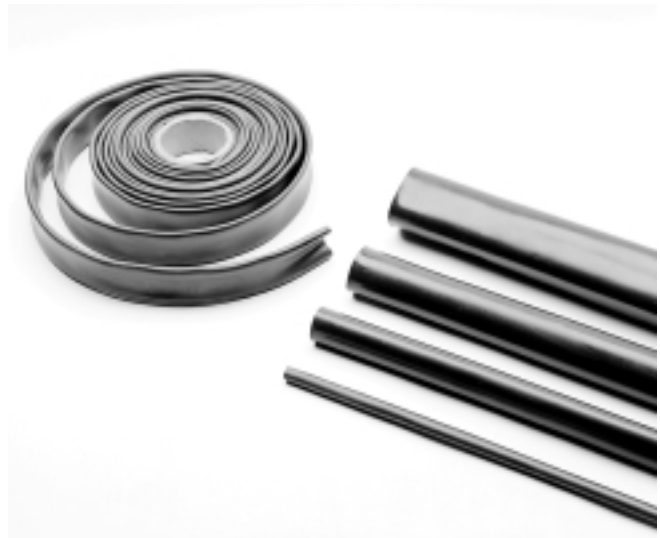
XFFR and ZHS halogen-free tubing can be used for re-jacketing and repairing halogen-free cables in any enclosed area where a flame-retardant, halogen-free environment is required. These environments include tunnels, buildings, mass transit vehicles, and ships. When installed with SFTS-FR1 tape, the tubing can also be used in applications requiring water sealing and protection from abrasion and corrosion.

## Features/Benefits

- Emits minimal amounts of toxic or acid gases during combustion.
- Meets performance requirements of MIL-C-24640 and MIL-C-24643 cable jackets.
- Resists moisture, fungus, and weathering.
- Available in expansion ratios as high as 3:1.
- ZHS has the following approvals:
  - ABS (American Bureau of Shipping)
  - DNV (Det Norske Veritas)
  - Lloyd's (Lloyd's Register of Shipping)

## Installation

Minimum shrink temperature: 70°C  
Minimum full recovery temperature: 121°C



## Specifications/Approvals

Series	Military	Industry	Raychem
XFFR	MIL-C-24643	NES 713 NES 711	Nemosyne XFFR
ZHS			RW-2016

## Product Dimensions (mm/in)

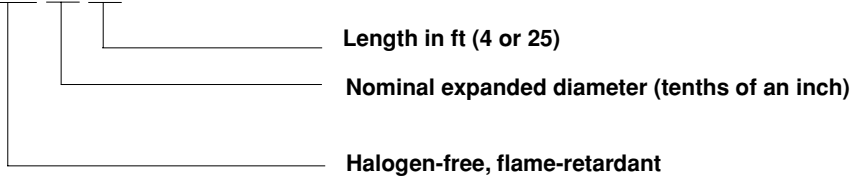
Part number	Agency approved part number	Inside diameter		Wall thickness (nom.)	
		Expanded (min.)	Recovered (max.)	Recovered (after unrestricted shrinkage)*	
XFFR-03	ZHS 8/3	7.62 (.300)	2.54 (.100)	1.52 (.060)	
XFFR-04	ZHS 10/4	10.16 (.400)	3.81 (.150)	1.52 (.060)	
XFFR-07	ZHS 19/6	19.05 (.750)	5.59 (.220)	2.03 (.080)	
XFFR-11	ZHS 28/10	27.94 (1.100)	9.52 (.375)	2.67 (.105)	
XFFR-15	ZHS 38/13	38.10 (1.500)	12.70 (.500)	3.05 (.120)	
XFFR-20	ZHS 51/19	50.80 (2.000)	19.05 (.750)	3.05 (.120)	
XFFR-30	ZHS 76/32	76.20 (3.000)	31.75 (1.250)	3.94 (.155)	

\*Wall thickness will be less if tubing recovery is restricted during shrinkage.

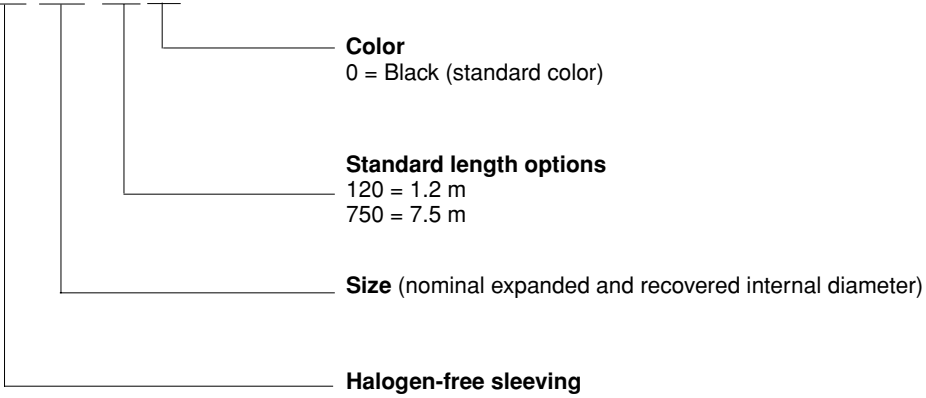
## Ordering Information

Color	Standard	Black (-0)
Size selection	XFFR:	4 and 25 feet. ZHS:
Standard packaging	Contact factory.	

**XFFR -03 -25**



**ZHS 38/13 120 -0**



**Fax-on-Demand:** (800) 260-9099  
(650) 361-6523

**Before ordering check with  
factory for most current data.**

## ZH-100

Flexible, thin-wall, low-fire-hazard tubing

### Applications

ZH-100 is a flexible, thin-wall, heat-shrinkable tubing designed for low-fire-hazard applications. ZH-100 contains no added halogens, and exhibits excellent fire safety characteristics combined with low evolution of acid gases, while retaining good mechanical and fluid resistance properties.

### Operating Temperature Range

-30°C to 105°C

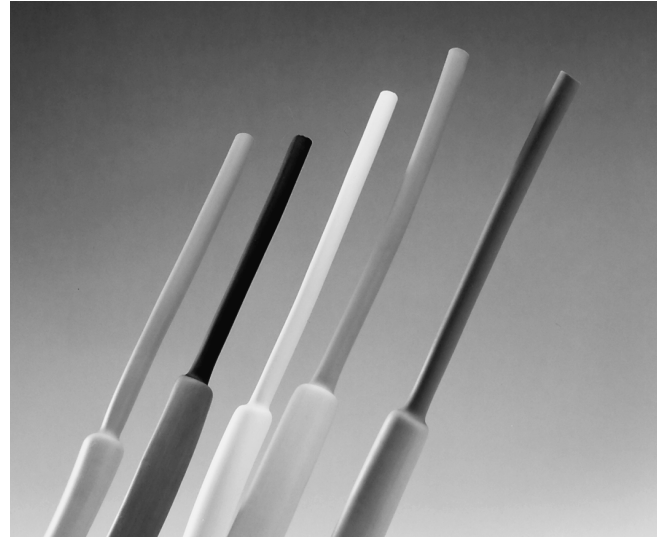
### Features/Benefits

- 2:1 shrink ratio.
- Low smoke emissions.
- No added halogens.
- Low evolution of acid gases.

### Installation

Minimum shrink temperature: 80°C

Minimum full recovery temperature: 120°C



### Specifications/Approvals

Series	Military	Agency	Raychem
ZH-100	Def. Stan. 59-97 Issue 3 Type 8	BR 1326A BS 3G-198 Part 3 Type 15	RW-2013

### Product Dimensions (mm/in)

Size	Inside diameter		Nominal wall thickness*	
	Minimum expanded as supplied	Maximum recovered after heating	Total wall recovered after heating*	
1/8	3.2 (.125)	1.6 (.062)	0.50 (.019)	
3/16	4.8 (.187)	2.4 (.093)	0.50 (.019)	
1/4	6.4 (.250)	3.2 (.125)	0.65 (.026)	
3/8	9.5 (.375)	4.8 (.187)	0.65 (.026)	
1/2	12.7 (.500)	6.4 (.250)	0.65 (.026)	
3/4	19.0 (.750)	9.5 (.375)	0.75 (.030)	
1	25.4 (1.000)	12.7 (.500)	0.90 (.035)	
1 1/2	38.0 (1.500)	19.0 (.750)	1.00 (.039)	
2	51.0 (2.000)	25.4 (1.000)	1.15 (.045)	

\*Wall thickness will be less if tubing recovery is restricted during shrinkage.

### Ordering Information

Color	Standard	Black (-0)
	Nonstandard	White (-9), red (-2), blue (-6), yellow (-4), green (-5)
Size selection	Always order the largest size that will shrink snugly over the component to be covered. Special order sizes are available upon request.	
Standard packaging	On spools.	
Ordering description	Specify product name, size, and color (for example, ZH-100 1/8-0).	