

# AIR BLOWN

## AIS Air Blown fiber Solution

### Low Smoke Zero Halogen Indoor Microduct

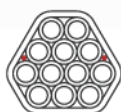
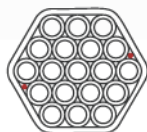
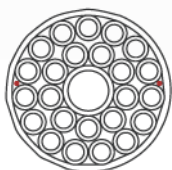


#### Product Introduction

AIS Air Blown Fiber product series, contains all indoor/outdoor microducts in different specification, series of air blown fiber units, series of air blown fiber cables and related installation accessories. Air blown installation method has been widely adopted by European and Asia countries, the advantage is the average 30% saving on the installation, repair and maintenance costs. The additional advantage is the fast installation, fast repair and easy expansion.

#### Product Features

- Fast installation, 3 times faster than ordinary fiber pulling
- Fast installation, man force required 4 times less than ordinary fiber pulling
- Future repair cost efficient, and easy repair
- Future expansion cost efficient, and easy expansion
- From planning + material cost + first time installation + future 5 to 10 year repair and expansion costs, it is 30% cost saving compare to ordinary fiber cable installation



#### LSOH Indoor microducts

- Sheath and microduct are LSZH material, meet building fire retardant requirements
- Outer diameter 5mm, inner diameter 3.5mm, available 1, 2, 4, 7, 12, 19 and 24 duct
- Tensile testing meets IEC 60794-1-2 Method E1 Kink testing meets IEC 60794-1-2 Method E10 Impact testing meets IEC 60794-1-2 Method E4, Crush testing meets IEC 60794-1-2 Method E3 Bending testing meets IEC 60794-1-2 Method E11 · Air pressure testing meets IEC 86A/1205/CD Annex C Flame Propagation testing meets IEC 60332 · Fume and Gas Emission testing meets IEC 60754 Smoke Emission testing meets IEC 61034-2, Flammability Temperature testing meets BS EN ISO 4589-3
- Standard dimension Outer diameter 5mm, inner diameter 3.5mm , 5/3.5mm, available in 10/8mm and 12/10mm
- LSZH material for indoor installation application

#### Primary Tube Technical Detail

	Outer Diameter		Inner Diameter		Sheath Thickness		Pressure	
	Min (mm)	Max (mm)	Min (mm)	Max (mm)	Min (mm)	Max (mm)	Silicon	MBar
5/3.5mm	4.9	5.1	3.4	3.6	0.75	0.85	0.1	12
10/8mm	9.9	10.1	7.9	8.1	1.0	1.1		
12/10mm	11.9	12.1	9.9	10.1	1.0	1.1		

		Outer Diameter(mm)	Max. Tensile (N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)
5/3.5mm LSZH Microduct	1 way	5.0	75	15	60	400
	2 way	12.2 x 7.2	375	75	150 x 90	400
	4 way	14.3 x 12.2	610	122	175 x 150	400
	7 way	17 x 15.7	925	185	205 x 190	400
	12 way	22.3 x 20	1450	290	270 x 240	400
	19 way	27 x 24.3	2100	420	325 x 295	400
	24 way	32 x 31.8	2900	580	385 x 380	400

## LSZH Primary Tubes Testing

Item	International Standard	Test Conditions	Performance
Tensile Strength	IEC 60794-1-2 Method E1	Microduct length under tension : > 1m, Tensile load : 0.5 W* Rate of Extension : ≥ 20mm/min Duration of max load 10 min Where Maximum tensile load = 0.5x 9.81x W , N, W = mass of 1Km of component in Kg	Pass : No permanent damage or deformation to the primary tubing or component parts of the sheath assembly after an applied load at 20mm/minute.
Kink	IEC 60794-1-2 Method E10	Diameter : ≤ 20 x O D	Pass : The outer and inner diameter of the microducts shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%
Impact	IEC 60794-1-2 Method E4	Striking surface radius : 10mm Impact : 1 Joules Number of impacts 3 Recovery Time : 1hr	Pass : Under visual examination, without magnification, there shall be no damage to the microduct. There shall be no residual deformation greater than 15% of the microduct diameter and no splitting or permanent damage. The imprint of the anvil on the sheath is not considered as mechanical damage.
Crush	IEC 60794-1-2 Method E3	Sample length : 1 m Load : 400N Duration of maximum load : 1 minute No applied loads : 3 (500mm apart) Recovery time : 1 hr	Pass : No permanent damage shall be imparted to the tubes as a result of this test Permanent deformation of the individual primary tube diameter shall be less than 0.5mm as a result of this test.
Bend	IEC 60794-1-2 Method E11	No Turns : 5 Mandrel diameter : ≤ 12 x OD Number of Cycles : 3	Pass : No permanent damage shall be imparted to the tubes as a result of this test Permanent deformation of the individual primary tube diameter shall be less than 0.5mm as a result of this test.
Friction		Sample length : 1.5 m Mandrel diameter : 300mm The sample length is secured with 450wrap around the mandrel with one end of the tube hanging downwards, the other end pointing horizontally towards the tensile machine	Pass : A 5kg weight shall be pulled at 1000mm/min and travel 100mm. An average force of 2 pulls shall be recorded to give a coefficient of friction less than 0.1
Pressure performance	IEC 86A/1205/CD Annex C	Test temperatures : 0°C to +40°C Pressure medium : Water (+anti freeze) Proof test pressure 12925 mbar Duration of proof test pressure : 24 hours Minimum burst test pressure 25850 mbar horizontally towards the tensile machine	Pass : Primary tubing shall be capable of sustaining the stated requirements without bursting or loss of pressure

## LSZH Microduct Testing

Item	International Standard	Test Conditions	Performance
Tensile Strength	IEC 60794-1-2 Method E1	Microduct length under tension : > 1m Tensile load : 0.5 W* Rate of Extension : ≥ 20mm/min Duration of max load 10 min Where Maximum tensile load = 0.5x 9.81 x W, N, W = mass of 1Km of component in Kg	Pass : No permanent damage or deformation to the primary tubing or component parts of the sheath assembly after an applied load at 20mm/minute.
Bend	IEC 60794-1-2 Method E11	No Turns : 5 Mandrel diameter : ≤12 x OD Number of Cycle : 3	Pass : The outer and inner diameter of the microducts shall show, under visual examination without magnification no damage and no reduction of diameter greater than 15%
Kink	IEC 60794-1-2 Method E10	Diameter: 20 x OD	Pass : No permanent damage shall be imparted to the sheath or tubes as a result of this test Permanent deformation of the individual primary tube diameter shall be less than 0.5mm as a result of this test.
Impact	IEC 60794-1-2 Method E4	Striking surface radius : 10 mm Impact : 3 Joules Number of impacts 3 Recovery Time : 1 hr	Pass : Under visual examination, without magnification, there shall be no damage to the microduct. There shall be no residual deformation greater than 15% of the microduct diameter and no splitting or permanent damage. This shall be verified by passing the inner clearance test. The imprint of the anvil on the sheath is not considered as mechanical damage.
Crush	IEC 60794-1-2 Method E3	Sample length : 1 m Load : 400N Duration of maximum load : 1 minute No applied loads : 3 (500mm apart) Recovery time : 1 hr	Pass : No permanent damage shall be imparted to the sheath or tubes as a result of this test Permanent deformation of the individual primary tube diameter shall be less than 0.5mm as a result of this test.
Flame Propagation Tests	IEC 60332	Single Cable Vertical Burning Test The completed cable shall conform to IEC 60332-1. Bunched Cable Vertical Burning Test. The completed cables shall conform to IEC 60332-3.	
Fume and Gas Emission Tests	IEC 60754	Acid Gas Emission - The materials shall conform to IEC 60754-1. Corrosivity of Evolved Gases. The materials shall conform to IEC60754-2 Fume Emission The material shall not include any functional groups containing Halogen, Phosphorous, Nitrogen or Sulphur, however, trace amounts up to 0.5% w/w maybe permitted.	

## LSZH Microduct Testing

Item	International Standard	Test Conditions	Performance
Smoke Emission Tests	IEC 61034-2	Cables shall conform to IEC 61034-2	During the tests there shall be no significant flame spread beyond the area of flame impingement, no dripping of liquid from the cable and no after burning
Flammability Temperature	BS EN ISO 4589-3	BS EN ISO 4589-3 not less than 270°C	

Product Code	Description
AB-101NLWH	1 way LSOH Air Blown Microduct, 5 / 3.5mm
AB-102NLWH	2 way LSOH Air Blown Microduct, 5 / 3.5mm
AB-104NLWH	4 way LSOH Air Blown Microduct, 5 / 3.5mm
AB-107NLWH	7 way LSOH Air Blown Microduct, 5 / 3.5mm
AB-112NLWH	12 way LSOH Air Blown Microduct, 5 / 3.5mm
AB-119NLWH	19 way LSOH Air Blown Microduct, 5 / 3.5mm
AB-124NLWH	24 way LSOH Air Blown Microduct, 5 / 3.5mm