

5.0/3.5MM NON-METALLIC DIRECT BURIED TUBE ASSEMBLIES.

Assemblies of PE tubes, each with low friction performance suitable for fibre blowing. The tube bundle is surrounded by a layer of non-metallic moisture-barrier tape (shown green for clarity) and a flexible sheath of black PE. The outer sheath is rugged orange PE, providing excellent protection from the physical environment. The heavier construction lies flatter in trenches, has increased crush rating and has more resistance to localised bending.

The sheath is marked in one plane, at 1 metre intervals, with the following legend:

—| IIII M  **PRYSMIAN TUBING PGH** yyyy **NM DIRECT BURIED** n WAY

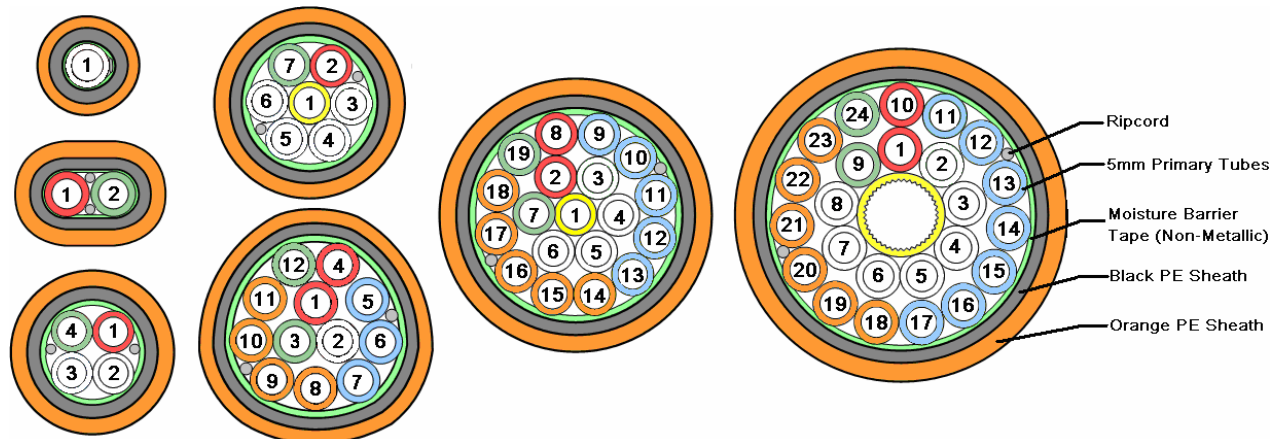
where: IIII - sequential length mark
 yyyy - year of manufacture
 n - number of PE tubes

Primary Tubes Technical Details

Internal diameter (nominal): 3.5mm
 External diameter (nominal): 5.0mm
 Operation Pressure rating: 10 Bar

Assembly Technical Details

	Reference	Nom OD (mm)	Nom ID (mm)	Max Tensile (N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)
DBnm-1 Way	5500524	10.0	7.2	650	65	120	2000
DBnm-2 Way	5500525	17.5 x 12.5	13.5 x 8.5	1300	130	210 x 150	2000
DBnm-4 Way	5500526	20.4	16.2	2400	240	245	2000
DBnm-7 Way	5500527	23.3	19.2	3000	300	280	2000
DBnm-12 Way	5500528	29.0	25.0	4200	420	350	2000
DBnm-19 Way	5500529	34.0	29.6	6000	600	410	2000
DBnm-24 Way	5500530	38.5	34.5	6800	680	465	2000



Colour Code

1 Way	2 Way	4 Way	7 Way	12 Way	19 Way	24 Way
1 - Natural	1 - Red	1 - Red	1 - Yellow	1 & 4 - Red	1 - Yellow	1 & 10 - Red
	2 - Green	2 & 3 - Natural	2 - Red	2 - Natural	2 & 8 - Red	2 to 8 - Natural
		4 - Green	3 to 6 - Natural	3 & 12 - Green	3 to 6 - Natural	9 & 24 - Green
			7 - Green	5 to 7 - Blue	7 & 19 - Green	11 to 17 - Blue
				8 to 11 - Orange	9 to 13 - Blue	18 to 23 - Orange
					14 to 18 - Orange	

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Primary Tubes Type Tests:

Mechanical Properties	International Standard	Test Conditions	Performance
Tensile Strength	IEC 60794-1-2 Method E1	microduct length under tension: > 1m Tensile load: 0.7 W* Rate of Extension: ≥ 20mm/min Duration of max load: 10 min Where Maximum tensile load = 0.7x 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.
Kink	IEC 60794-1-2 Method E10	Diameter: ≤20 xOD	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: 10 mm Impact: 1 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. 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 : 700N 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 xOD 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	Pass : Primary tubing shall be capable of sustaining the stated requirements without bursting or loss of pressure.

Tube Assembly Type Tests:

Mechanical Properties	International Standard	Test Conditions	Performance
Tensile Strength	IEC 60794-1-2 Method E1	microduct length under tension: > 1m Tensile load: 1.0 W* Rate of Extension: ≥ 20mm/min Duration of max load: 10 min Where Maximum tensile load = 1.0x 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 xOD Number of Cycles: 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 xOD	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: 5 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 : 2000N 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.