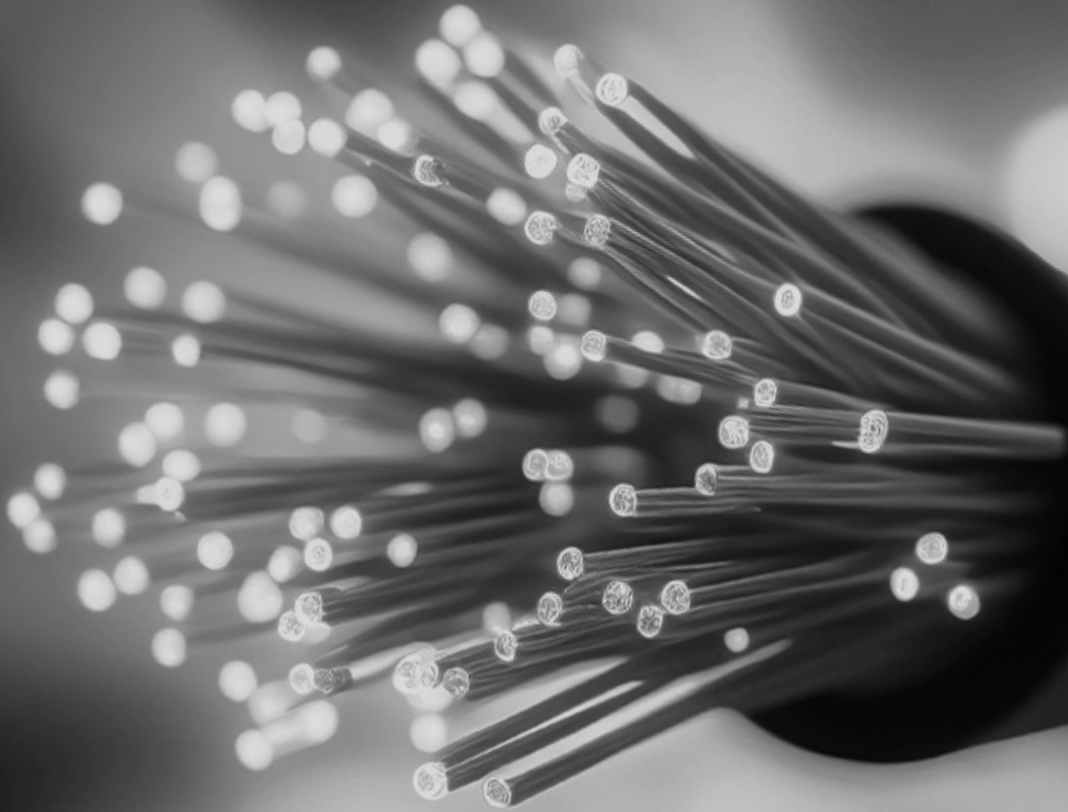
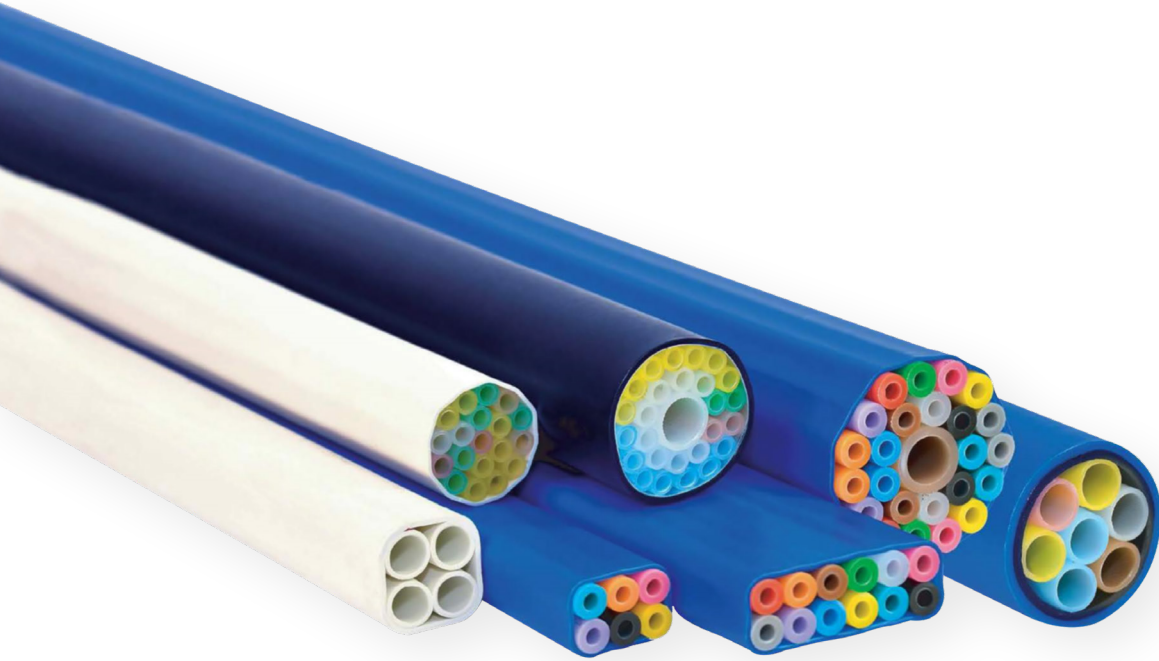


Micro-Path™ Piping System



Atkore™
United Poly
Systems

Micro-Path™ Microduct Piping System



Recent improvements in fiber construction have made microducting and micro-cabling an economical option to traditional cabling products. They provide a robust solution for upgrading today's aging infrastructure. Micro-Path, United Poly Systems' exclusive Microduct piping system, provides a full range of microducting and micro-cabling solutions.

Microduct is ideal for any application where traditional conduit installations occur. It is the best solution for upgrading or replacing existing communications infrastructure and is well suited for tight or constricted areas where there is no room for expansion or new installation of traditional cable. Applications include telecommunications providers, utility solutions, hospitals, utility and energy providers, transportation, entertainment, government facilities, corporate complexes, university campuses, military site applications and anywhere high-speed communications are needed.

Micro-Path™ Applications

Utility system monitoring and controlling, and networked data communication.



Broadband Network: Fiber-to-the-home (FTTH), Fiber-to-the-business (FTTB) and Fiber to the X (FTTX) or multiple destinations, providers using optical fiber to provide high speed service to end subscribers and long-haul, backhaul and premise fiber deployments.



Education: Adapts new communication technologies for campus environments and allow for interaction between outside organizations nationally and abroad for greater connectivity and collaboration. Promotes distance learning.



Hospitals: Secure the entire hospital network to stay current with advances in data-intensive medical technology and limits staff and patient disruptions.



Residential: Helps with fiber installations to the home so developers can provide high-speed internet service to their customers while allowing for future upgrades.



Government: Fiber installation, additions and changes can be made quickly and enable segmented and secure networks in the same microduct configuration.

Advantages of Microduct over traditional cabling outlays

- Easy and quick installation in direct buried applications using minimally invasive micro-trenching equipment.
- Superior mechanical and environmental protection for lightweight microfiber optical cables, which can be easily installed using various air blowing techniques, or traditional cable pulling and/or pushing methods.
- Increased flexibility for telecom carriers due to the ease at which service laterals and drops can be reconfigured and installed as customer demand increases.
- Small diameter microduct products are offered in a wide variety of configurations, giving carriers the option to install into existing occupied conduits.
- Help to future proof carrier networks: optic cables are easily removed and replaced with high-density, higher-fiber count cables as demand increases.
- Riser-rated microduct products provide safe, flexible, lightweight, durable and easy to-install pathways to deploy bare fiber and microfiber cables inside a multi-dwelling unit (MDU) or commercial building.



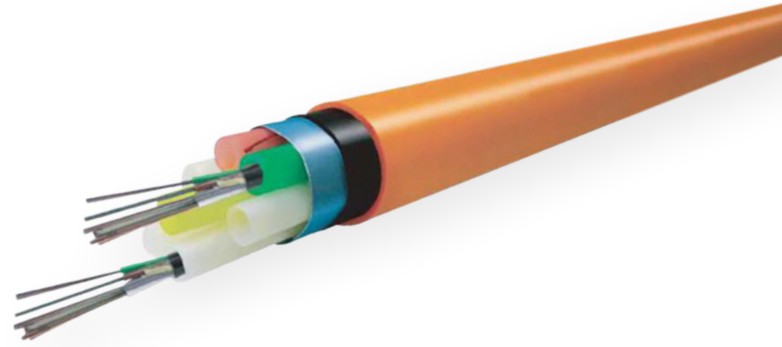
Installation Methods

Microduct products may be installed in direct burial applications via micro-trenching or in microduct pathways via air blowing techniques or traditional cable pulling/pushing. Microducts future-proof networks since additional fiber cables can be placed at a later time in response to demand and capacity increases. Often additional microducts are installed and left open or vacant, providing pathways for future expansion. Alternatively, higher-density, higher-fiber count micro-cables can easily be pulled through existing conduit to replace conventional cabling.

Micro-Path™ Microduct Piping System

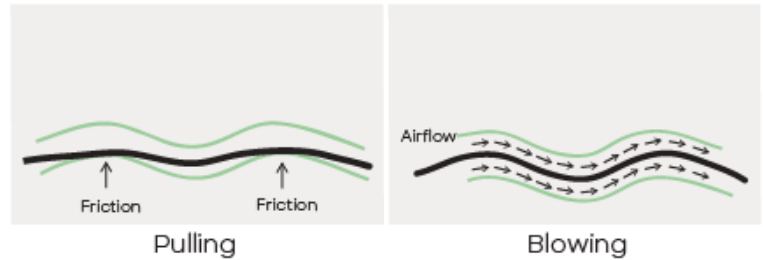
Micro-Path™ Microduct Piping System pathways provide a permanent installation that satisfies your immediate communication requirements and leaves sufficient pathway for future expansions.

Any moves, adds or changes in the network are quickly accommodated utilizing the pathway and accessories.



Rapid, safe and smooth installation with air blowing methods (ABC)

ABC installations are done by an air blowing technique that reduces the risk of damage to the fiber cable, accelerates installation time and increases the installation distance.



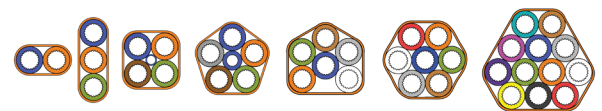
Microduct selection guidelines

Select the proper size microduct by using the Microduct Selection Guidelines table.

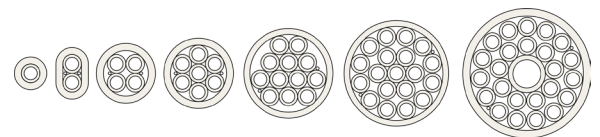
Fiber Counts Installed	1-12F	24-72C	96-144C	216-288C
OD of Cable	1.0-2.0mm	3.2-5.8mm	6.8 - 8.0mm	8.4-9.2mm
Microduct Tube	3.5mm	8mm	10mm	12mm

Numerous styles and sizes available:

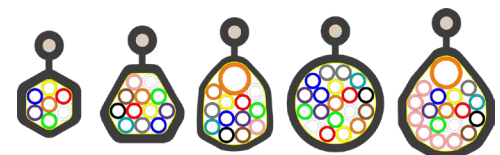
Primary Duct Size		Number of Duct in Bundle
0.629 in / 0.472 in	16mm / 12mm	1 - 12 (+0.47 inch central duct)
0.551 in / 0.394 in	14mm / 10mm	2 - 7 (+0.47 inch central duct)
0.472 in / 0.315 in	12mm / 8mm	2 - 12 (+0.315 inch central duct)
0.39 in / 0.23 in	10mm / 6mm	2 - 24 (+0.55 inch central duct)
0.276 in / 0.138 in, and 0.276 in / 0.157 in	7mm / 3.5mm, and 7mm / 4mm	2 - 24 (+0.55 inch central duct)
0.12 in / 0.08 in, 0.19 in / 0.13 in, and 0.31 in / 0.23 in	3mm / 2mm, 5mm / 3mm, and 8mm / 6mm	1 - 24 (+ central duct)
Low Fire Hazard		
0.19 in / 0.12 in	5 mm / 3 mm	2 - 24 (+ central duct)
Aerial		
0.19 in / 0.13 in	5 mm / 3.5 mm	4, 7, 9, 10, 12, 17, 19 and 25 way



Micro-Path™ 0.629 in / 0.472 in | 16mm / 12mm
(more configurations and sizes available)



Low Fire Hazard

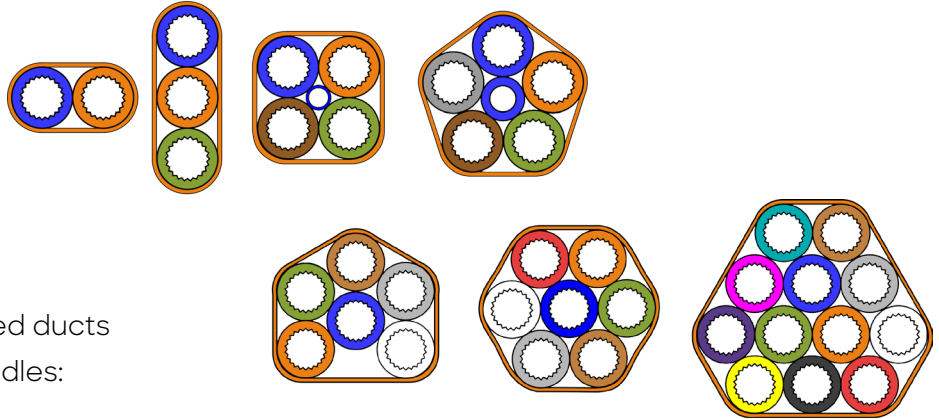


Aerial

Micro-Path™ | 0.629 in / 0.472 in (16mm / 12mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles:
2 - 12 (+ 0.47 inch central duct)



Product Details

Type	Diameter	Mass	Wall Thickness	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct**
	in	lbs per mile	in	lbs	kN	in
Single	0.629 outer / 0.472 inner	298	--	262	1.19	6.299 warm / 8.661 cold
2-Way DBMF	1.346 outer / 0.716 inner	915	0.04	523	2.37	7.086 warm / 9.448 cold
3-Way DBMF	1.976 outer / 0.716 inner	1288	0.04	772	3.57	7.086 warm / 9.448 cold
4-Way DBMF	1.634 across outer corners	1724	0.04	1047	4.75	22.441
5-Way DBMF	1.819 across outer corners	2139	0.04	1312	5.95	30.315
6-Way DBMF	1.976 across outer corners	2352	0.04	1576	7.14	33.465
7-Way DBMF	1.976 across outer corners	2647	0.04	1830	8.3	33.465
12-Way DBMF	2.642 outer	4314	0.04	3131	14.2	50.118

* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

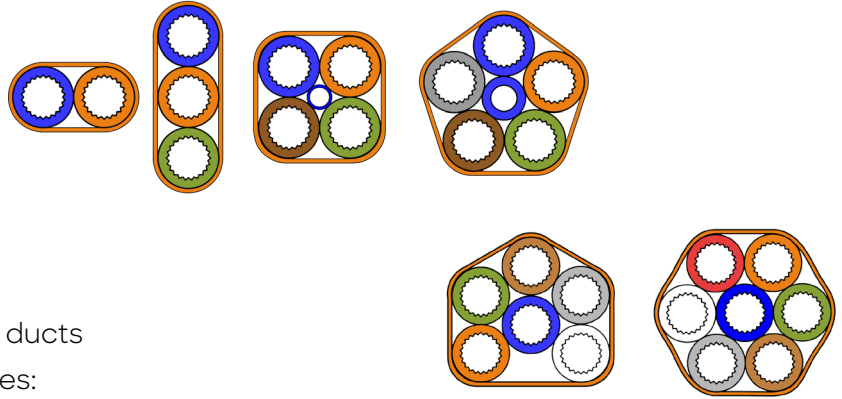
** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ Microduct Piping System

Micro-Path™ | 0.551 in / 0.394 in (14mm / 10mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles:
2-7 (+ 0.47 inch central duct)
- 4-way has a standard 0.236 in / 0.177 in Microduct in the center
- 5-way has a standard 0.394 in / 0.315 in Microduct in the center



Product Details

Type	Diameter	Mass lbs per mile	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct** in	Crush Load	
	in		lbs	kN		lbs	kN
Single	0.551 (+/- 0.004) outer / 0.394 (0.386 min) inner	259.05	110.2	0.5	8.268	110.2	0.5
2-Way DBMF	1.181 outer / 0.630 inner	762.96	269.7	1.2	9.449	269.7	1.2
3-Way DBMF	1.732 outer / 0.630 inner	1114.08	382.2	1.7	9.449	382.2	1.7
4-Way DBMF	1.417 across outer corners	1429.89	449.6	2	19.685	449.6	2
5-Way DBMF	1.575 across outer corners	1798.83	606.9	2.7	27.559	606.9	2.7
6-Way DBMF	1.732 across outer corners	1990.56	674.4	3	29.528	674.4	3
7-Way DBMF	1.732 across outer corners	2238.72	786.8	3.5	29.528	786.8	3.5

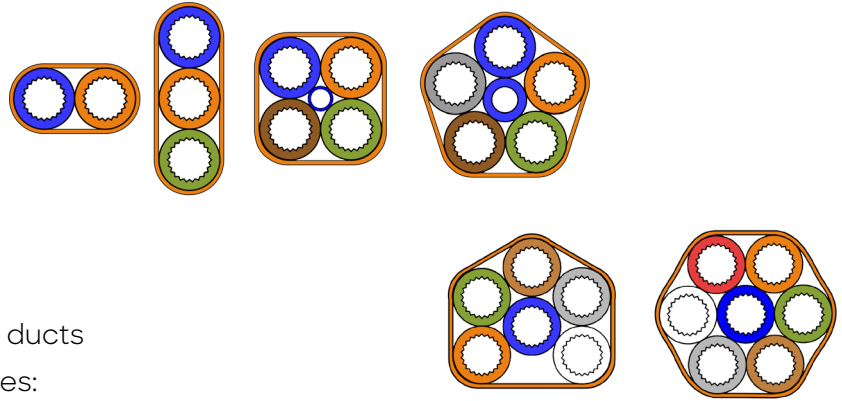
* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ | 0.472 in / 0.315 in (12mm / 8mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles: 2-12 (+0.315 in central duct)



Product Details

Type	Diameter	Mass	Wall Thickness	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct**
	in	lbs per mile	in	lbs	kN	in
Single 8mm	0.315 outer / 0.138 inner	134.64	--	55.1	0.25	3.149
Single 12mm	0.472 outer / 0.315 inner	212.85	--	8.2	0.4	4.724
2-Way DBMF	0.551 outer / 1.023 inner	652.74	0.039	198.4	0.9	8.661
3-Way DBMF	0.551 outer / 1.496 inner	947.43	0.039	308.7	1.4	8.661
4-Way DBMF	1.220 across outer corners	1252.68	0.039	396.8	1.8	17.323
5-Way DBMF	1.354 across outer corners	1543.41	0.039	529.1	2.4	23.622
6-Way DBMF	1.496 across outer corners	1653.3	0.039	573.2	2.6	23.622
7-Way DBMF	1.496 across outer corners	1883.97	0.039	617.3	2.8	25.591
12-Way DBMF	2.008 outer	3058.44	0.039	1058.2	4.8	27.559

* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

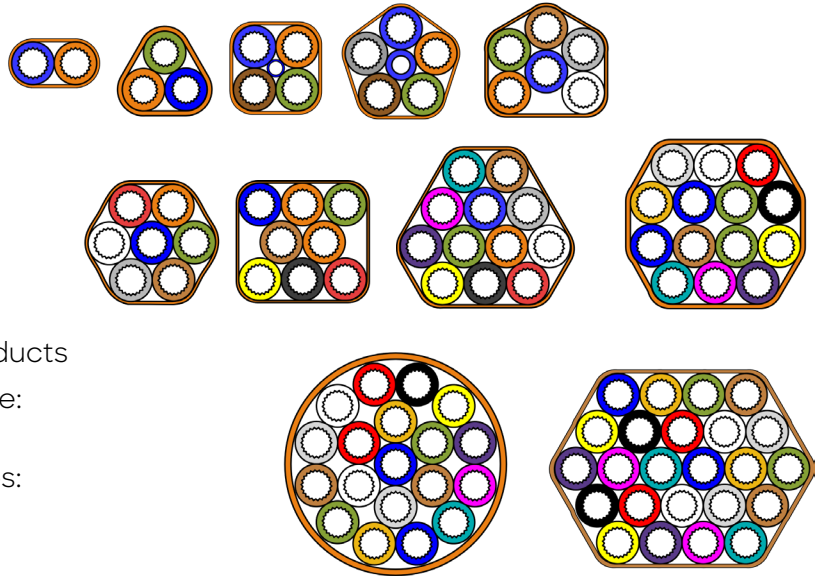
** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ Microduct Piping System

Micro-Path™ | 0.39 in / 0.23 in (10mm / 6mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Crush load at 10% compression for single: 440.9 lbs / 2 kN
- Number of single micro-ducts in bundles: 2-24 (+ 0.55 inch central duct)



Product Details

Type	Diameter	Mass lbs per mile	Wall Thickness in	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct** in
	in			lbs	kN	
Single	0.39 outer / 0.24 inner	170.3	--	88.2	0.40	4.72
2-Way DBMF	0.48 x 0.87	542.8	0.04	308.6	1.40	8.66
3-Way DBMF	0.93	752.2	0.04	418.8	1.90	13.78
4-Way DBMF	1.03	982.8	0.04	551.1	2.50	13.38
5-Way DBMF	1.15	1216.9	0.04	661.3	3.00	17.71
6-Way DBMF	1.26	1362.3	0.04	771.6	3.50	21.65
7-Way DBMF	1.26	1543.4	0.04	881.8	4.00	21.65
8-Way DBMF	1.52	1642.7	0.04	936.9	4.25	27.044
12-Way DBMF	1.68	2504.8	0.04	1433	6.50	29.52
14-Way DBMF	1.81	2898.7	0.04	1653.4	7.50	34.48
19-Way DBMF	1.98	3633.1	0.04	2094.4	9.50	37.64
24-Way DBMF	2.45	4094.4	0.04	2314.8	10.50	42.52

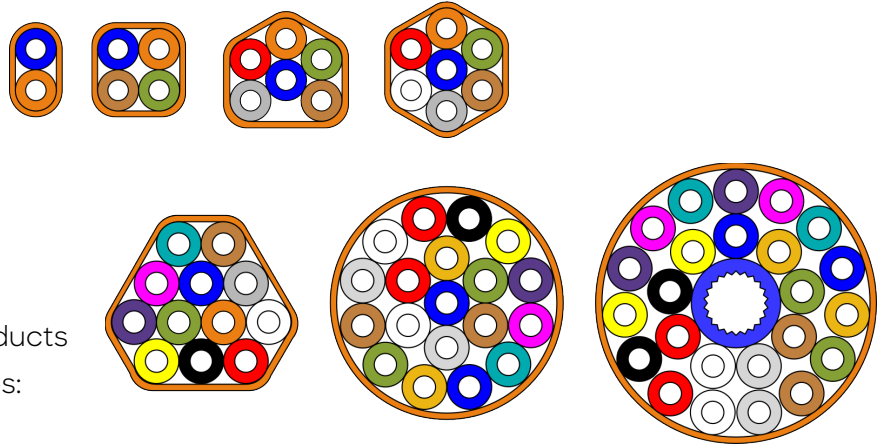
* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ | 0.276 in / 0.318 in (7mm / 3.5 mm) and 0.276 in / 0.157 in (7mm / 4 mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 291 psi / 20 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles: 2-24 (+ 0.55 inch central duct)



Product Details

Type	Diameter	Mass	Wall Thickness	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct**
	in	lbs per mile	in	lbs	kN	in
Single +/- 0.004 / +/- 0.008	0.276 outer / 0.551 inner	99.3	--	86	0.39	3.9
Single +/- 0.004 / +/- 0.004	0.276 outer / 0.157 inner	88.7	--	77	0.35	2.7
Single +/- 0.008 / +/- 0.008	0.551 outer / 0.394 inner	255.5	--	225	1.02	8.9
0.276 in / 0.138 in (7mm / 3.5mm)						
2-Way DBMF	0.36 x 0.64	344.1	0.04	171.9	0.78	6.3
4-Way DBMF	0.75	603.2	0.04	343.9	1.56	12.9
6-Way DBMF	0.91	830.2	0.04	518.1	2.35	15.7
7-Way DBMF	0.91	943.7	0.04	595.2	2.70	15.7
12-Way DBMF	1.21	1522.1	0.04	1036.1	4.70	20.8
19-Way DBMF	1.43	2270.1	0.04	1631.4	7.41	24.4
24-Way DBMF	1.74	3051.2	0.04	2072.3	9.40	29.5
0.276 in / 0.157 in (7mm / 4mm)						
2-Way DBMF	0.36 x 0.64	322.8	0.04	154.3	0.70	6.3
4-Way DBMF	0.75	564.1	0.04	308.6	1.40	12.9
6-Way DBMF	0.91	769.9	0.04	462.3	2.10	15.7
7-Way DBMF	0.91	876.3	0.04	540.1	2.45	15.7
12-Way DBMF	1.21	1401.4	0.04	925.9	4.20	20.8
19-Way DBMF	1.43	2082.5	0.04	1466.1	6.62	24.4
24-Way DBMF	1.74	2813.5	0.04	1851.9	8.40	29.5

* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

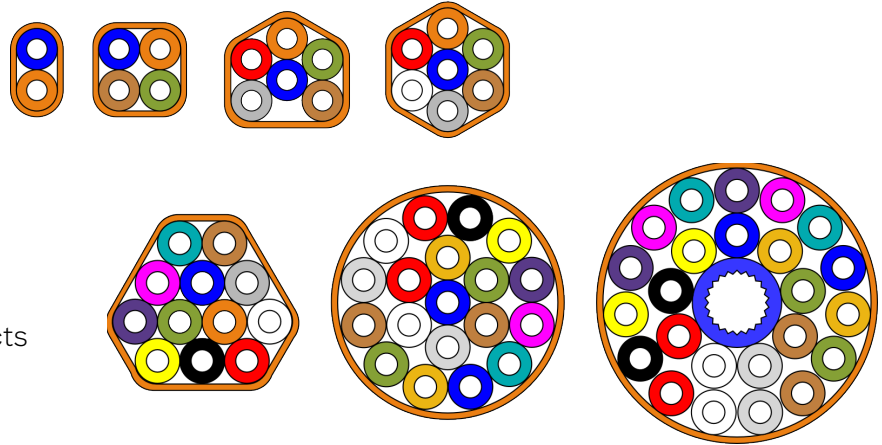
** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ Microduct Piping System

Micro-Path™ | 0.12 in / 0.08 in (3mm / 2 mm), 0.19 in / 0.13 in (5mm / 3mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles: 2-24 (+central duct)



Product Details

Type	Diameter	Mass	Wall Thickness	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct**
	in	lbs per mile	in	lbs	kN	in
0.12 in / 0.08 in (3mm / 2mm)						
Single	0.12 outer / 0.08 inner	--	--	4.4	0.02	1.18
1-Way DI	0.25	117.1	0.06	55	0.25	3.54
2-Way DI	0.25 x 0.37	163.2	0.06	77	0.35	3.54
4-Way DI	0.41	241.2	0.06	110	0.50	5.91
7-Way DI	0.48	305.1	0.06	132	0.60	6.69
12-Way DI	0.61	432.8	0.06	198	0.90	8.66
19-Way DI	0.70	567.6	0.06	264	1.20	9.84
24-Way DI	0.84	741.5	0.06	330	1.50	11.8
0.19 in / 0.13 in (5mm / 3mm)						
Single	0.19 outer / 0.13 inner	--	--	15.4	0.07	1.96
1-Way DI	0.31	173.8	0.06	88	0.40	4.72
2-Way DI	0.31 x 0.51	273.2	0.06	132	0.60	4.72
4-Way DI	0.59	418.6	0.06	154	0.70	7.87
7-Way DI	0.71	574.7	0.06	330	1.50	9.45
12-Way DI	0.91	851.5	0.06	352	1.60	12.21
19-Way DI	1.06	1167.3	0.06	551	2.50	14.17
24-Way DI	1.29	1550.4	0.06	881	4.00	19.68

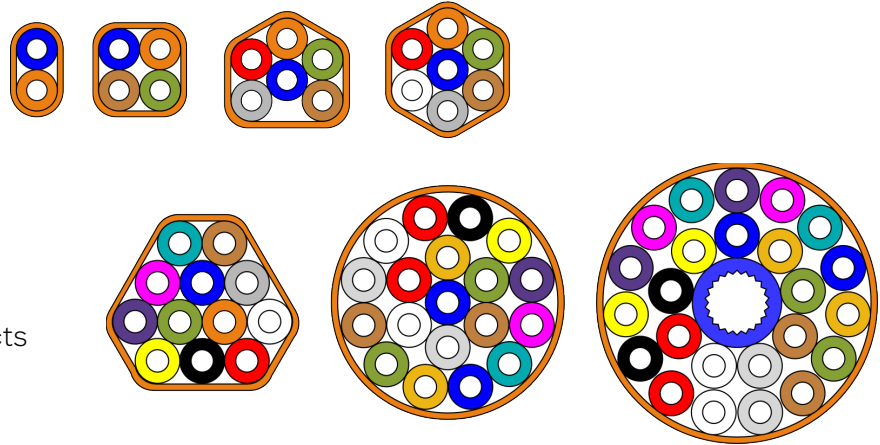
* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ | 0.31 in / 0.23 in (8mm / 6mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m
Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles:
2-24 (+central duct)



Product Details

Type	Diameter	Mass	Wall Thickness	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct**
	in	lbs per mile	in	lbs	kN	in
0.31 in / 0.23 in 8mm / 6mm)						
Single	0.31 outer / 0.23 inner	--	--	30.8	0.14	3.15
1-Way DI	0.43	276.7	0.06	132	0.60	5.91
2-Way DI	0.43 x 0.75	454.1	0.06	220	1.00	5.91
4-Way DI	0.86	723.7	0.06	330	1.50	11.81
7-Way DI	1.06	1036.1	0.06	440	2.00	14.57
12-Way DI	1.42	1575.3	0.06	705	3.20	21.65
19-Way DI	1.65	2210.4	0.06	992	4.50	25.59

* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

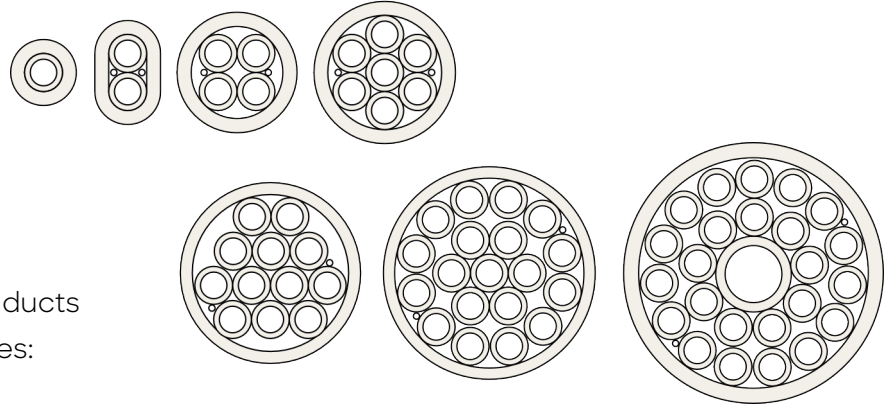
** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ Microduct Piping System

Micro-Path™ Low Fire Hazard | 0.19 in / 0.12 in (5mm / 3mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts
- Number of single micro-ducts in bundles: 2-24 (+central duct)



Product Details

Type	Diameter	Mass	Max. Pull Tension - Installation*		Min. Bend Radius of Primary Duct**
	in	lbs per mile	lbs	kN	in
Single	0.19 outer / 0.12 inner	53.2	55	0.06	1.97
1-Way LF	0.27 in	159.6	33	0.15	3.94
2-Way LF	0.27 x 0.47 in	283.8	55	0.25	5.91
4-Way LF	0.47 x 0.55	450.6	88	0.40	5.91
7-Way LF	0.67	674.1	132	0.60	8.66
12-Way LF	0.86	1099.8	209	0.95	11.81
19-Way LF	1.02	1554.1	286	1.30	13.78
24-Way LF	1.26	2096.8	396	1.80	19.68

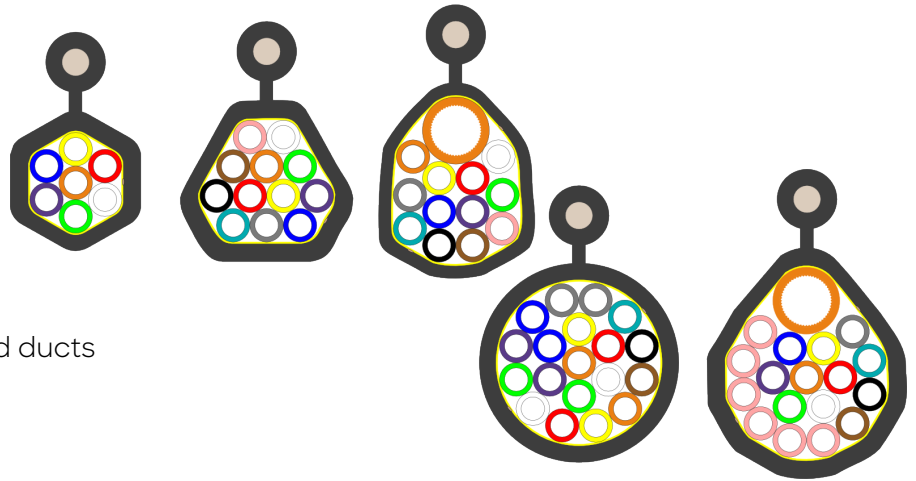
* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.

Micro-Path™ Fig 8 Protected Aerial | 0.19 in / 0.13 in (5mm / 3.5mm)

Product Benefits

- Tested according to IEC 60794-5
- Blowing track: 6562 ft / 2000 m Performance confirmed
- Low friction and best blowing results
- UV protection up to 2 years
- Pressure tight up to 217.6 psi / 15 bar
- Smooth or ribbed inner surface
- Translucent with stripes or uni-colored ducts



Product Details

Design	Outside Diameter	Description	Shape
	in		
CP1124	0.71	7-Way DI Fig 8 FRP - 0.19 mm / 0.12 mm - 3280 ft	6 side
CP1125	1.11	12-Way DI Fig 8 FRP - 0.19 mm / 0.12 mm - Combo	Flat
CP1126	0.91	12-Way DI Fig 8 FRP - 0.19 mm / 0.12 mm	Circle
CP1137	1.26	10-Way Fig 8 FRP - 0.19 mm / 0.12 mm - Combo	Circle
CP1202	1.14	12-Way Fig 8 FRP - 0.19 mm / 0.12 mm - Combo	Flat
CP3121	1.10	19-Way Fig 8 FRP - 0.19 mm / 0.12 mm	Circle
CP1656	1.34	7-Way Fig 8 FRP - 0.39 mm / 0.31 mm	Circle
CP2170	1.06	4-Way Fig 8 FRP - 0.39 mm / 0.31 mm	Square
CP2003	0.91	10-Way Fig 8 Steel - 0.19 mm / 0.12 mm - Combo	Flat
CP4004	1.93	25-Way Fig 8 Steel - 0.19 mm / 0.12 mm	Bunch
CP4091	0.94	12-Way Fig 8 Steel - 0.19 mm / 0.12 mm	Circle
CP4094	1.26	17-Way Fig 8 Steel - 0.19 mm / 0.12 mm - Combo	Bunch
CP4110	0.71	7-Way Fig 8 Steel - 0.19 mm / 0.12 mm	Circle

* After applying pulling tensions, allow time for the pulled product to relax. See instruction manuals

** This radius relates to the microduct capability only and does not indicate a good radius for blowing FU.



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