

Air Blown Total Solution for Fiber Optic MICRODUCT



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About KNET

Since its establishment in 2002, KNET has been constantly contributing to the development of telecommunications technologies in order to create a better life for people. Specializing in piping solution for communication and civil engineering, KNET feels the responsibility for supplying products of the best quality only. Our vision is "to connect the whole world with our product, let people all around the globe experience all the benefits of the future technologies and never let our customers down by constant improvement and innovation." Our mission is "to satisfy our customers with high quality and longevity of every single product we supply with deep respect to our nature and humans."

















Considering global environmental issues and the problem of scarcity of natural resources, KNET is very concerned about our future and sustainable development. Thus, we choose the best solution to bring happiness to people and at the same time stay environmentally friendly: FTTx solution for fiber optic deployment by air blowing can make it real. KNET is trying to improve and adapt Air-Blown Total Solution pursuing one goal – to build Broadband Network Society of the Future. KNET played an important role in the development of FTTx technologies and contributed a lot to the projects of U-City and Smart Grid in Korea providing Air-Blown Total Solution for fiber optic deployment in microducts. Besides that, KNET has proven itself as a reliable business partner with high quality products in the global arena as well, exporting to Europe, Asia, Middle East, Oceania, Africa, North and South Americas.

KNET can help implement the project from the very first step of network designing to the installation phase, providing all the necessary technical training, service and maintenance. Air-Blown Total Solution with KNET Microducts will guarantee the best performance even in the most severe conditions, and it will significantly reduce CAPEX and OPEX in comparison with conventional fiber optic deployment techniques.

We want to state once again, that KNET does care about our environment, quality of life and people's happiness and considering this, we will do our best to meet all your needs and wants by continuous innovation and change. With KNET products you will open a better world for yourself and for the future generation.



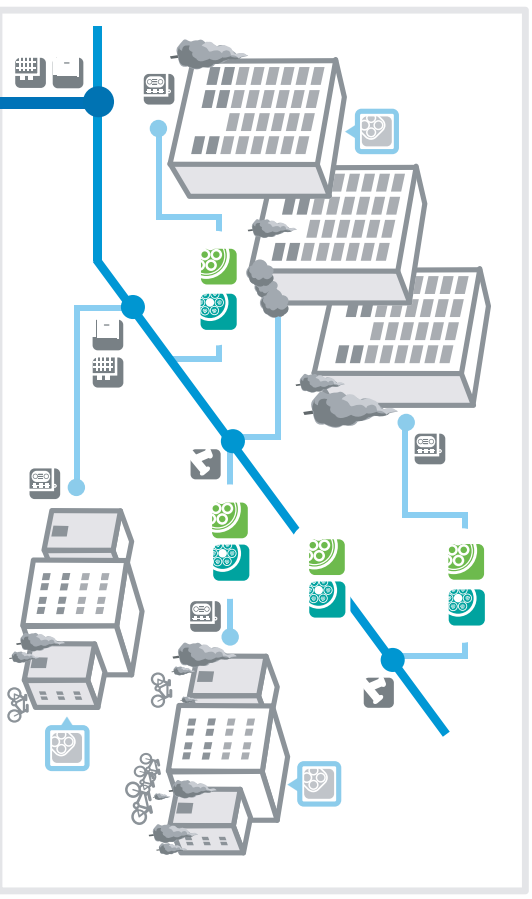
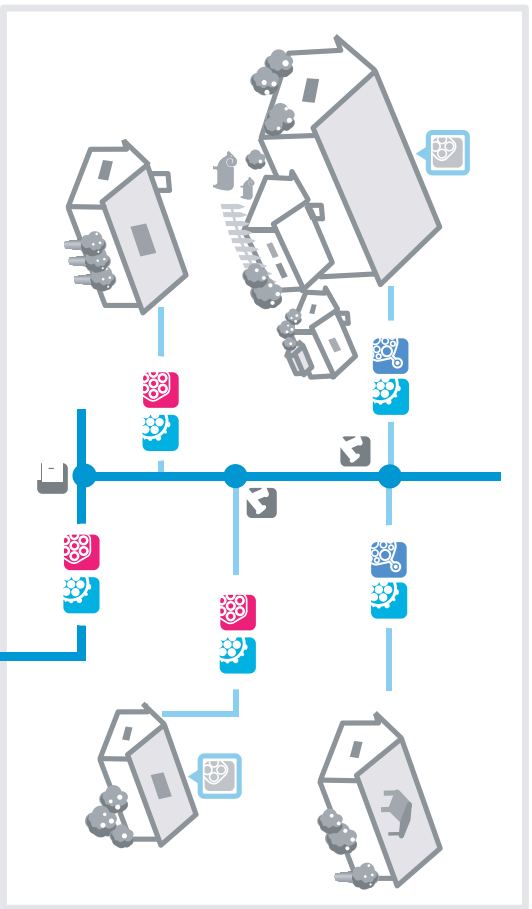
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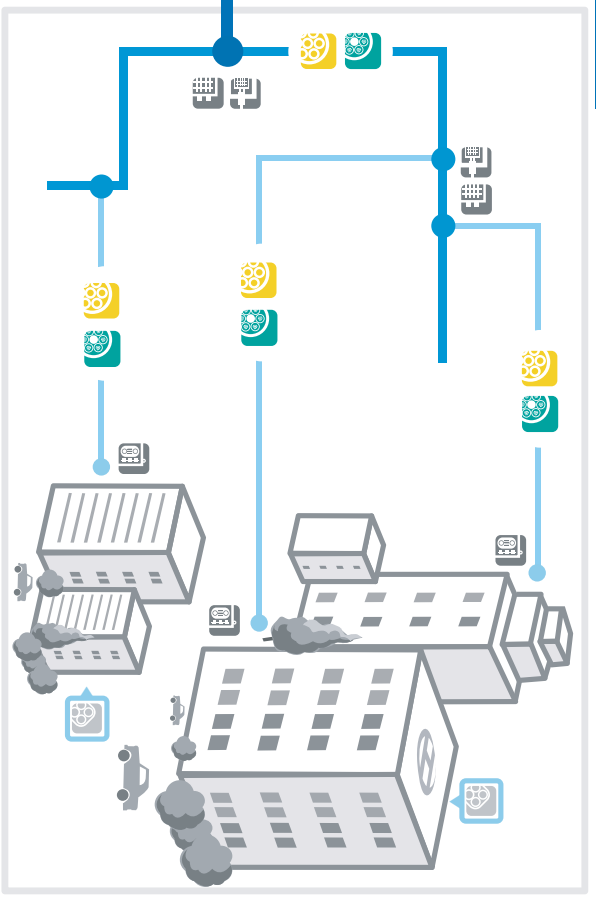
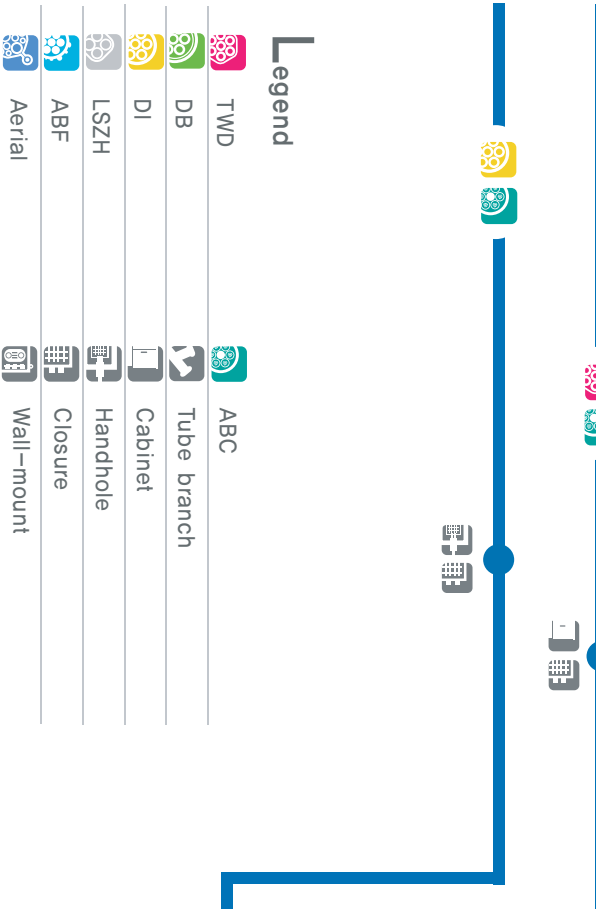


Application Matrix

4



5



Legend

	TWD		ABC
	DB		Tube branch
	DI		Cabinet
	LSZH		Handhole
	ABF		Closure
	Aerial		Wall-mount



Hybrid DB

6

Hybrid DB microducts consist of tube with a smooth or ribbed inner surface that enables an air blown installation of micro cables. The microduct is sheathed with two layers without moisture barrier. It provides excellent protection from the physical environment withstanding significant amount of pressure by pulling, and it is easy to branch off for network expansion.



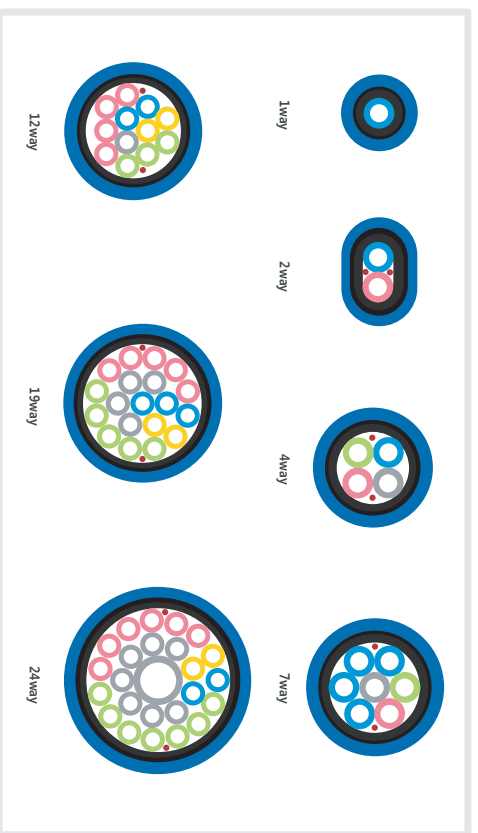
5/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	12	960	98	150	3000	2000	455*1100	220	80
2way	12x17	1370	140	150	3000	2000	550*1330	365	36
4way	19.1	1960	200	240	3000	2000	720*1400	501	24
7way	22	2530	259	270	3000	2000	720*1600	645	21
12way	27.9	3770	385	340	3000	2000	1100*1650	920	14
19way	31.9	4860	496	390	3000	2000	1100*1850	1176	12
24way	36	5780	590	440	3000	2000	1100*2120	1455	10

8/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	15	1400	142	180	3000	2000	550*1280	366	36
2way	15x23	2100	217	180	3000	2000	720*1480	538	24
4way	27.7	2900	296	330	3000	2000	1100*1620	735	14
7way	32.4	3500	355	390	3000	2000	1100*1900	902	12
12way	40.8	4500	461	490	3000	1000	1100*1840	655	12

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10/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	17	1620	166	210	3000	2000	550*1450	435	32
2way	17x27	2530	259	210	3000	2000	720*1680	658	21
4way	32.5	4490	459	400	3000	2000	1100*1880	1107	12
7way	38.4	5990	612	470	3000	2000	1100*2230	1528	10

12/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	19	1890	193	240	3000	2000	720*1400	487	24
2way	19x31	2980	305	240	3000	2000	1100*1520	739	15
4way	37.4	5320	543	460	3000	2000	1100*2170	1372	10
7way	44.4	7130	728	540	3000	1000	1100*1980	948	12





DB

8

Direct Buried microducts are suitable for fiber blowing with low friction inside the ducts. The microduct is surrounded by a moisture-barrier made of metallic tape and a flexible sheath made of HDPE. The outer sheath is made of rugged PE, providing excellent protection from the outer physical environment. Thanks to its characteristics, potential damages by crushing, external impact, etc. can be prevented.

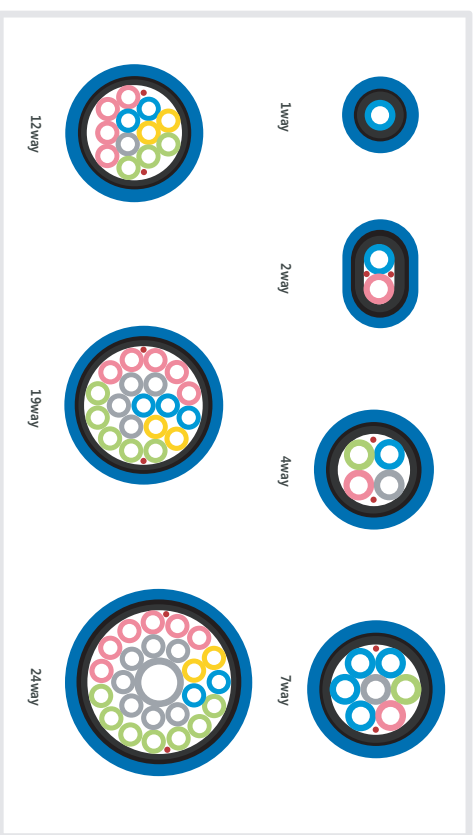


5/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	12.4	1.100	112	150	2000	2000	455*1100	250	80
2way	12.4x17.4	1.570	160	150	2000	2000	550*1330	410	34

4way	19.5	2.210	227	230	2000	2000	720*1400	550	25
7way	22.4	2.830	290	270	2000	2000	720*1600	710	21
12way	28.3	4.160	425	340	2000	2000	1100*1650	1000	14
19way	32.3	5.330	543	390	2000	2000	1100*1850	1270	12
24way	37.9	6.760	691	450	2000	2000	1100*2200	1670	10

8/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	15.4	1.600	161	180	2000	2000	550*1300	406	36
2way	15.4x23.4	2.400	242	180	2000	2000	720*1520	602	22
4way	28.1	4.100	415	340	2000	2000	1100*1620	970	14
7way	32.8	5.300	544	390	2000	2000	1100*1870	1270	12
12way	41.2	7.500	766	490	2000	1000	1100*1800	950	12

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10/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	17.4	1.860	189	210	2000	2000	550*1450	480	32
2way	17.4x27.4	2.870	292	210	2000	2000	720*1680	725	21
4way	32.9	4.960	506	400	2000	2000	1100*1880	1200	12
7way	38.8	6.550	669	470	2000	2000	1100*2220	1630	10

12/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	19.4	2.150	218	240	2000	2000	720*1450	550	24
2way	19.4x31.4	3.360	342	240	2000	2000	720*1500	850	18
4way	37.8	5.850	598	460	2000	2000	1100*2170	1470	10
7way	44.8	7.790	795	540	2000	1000	1100*1900	1000	12



Hybrid DI

Hybrid DI microduct consist of tubes with a smooth or ribbed inner surface that enable an air blown installation of microcables. The microducts is sheathed with one layer without moisture barrier. Hybrid DI is designed for installation inside existing pipes or subducts.

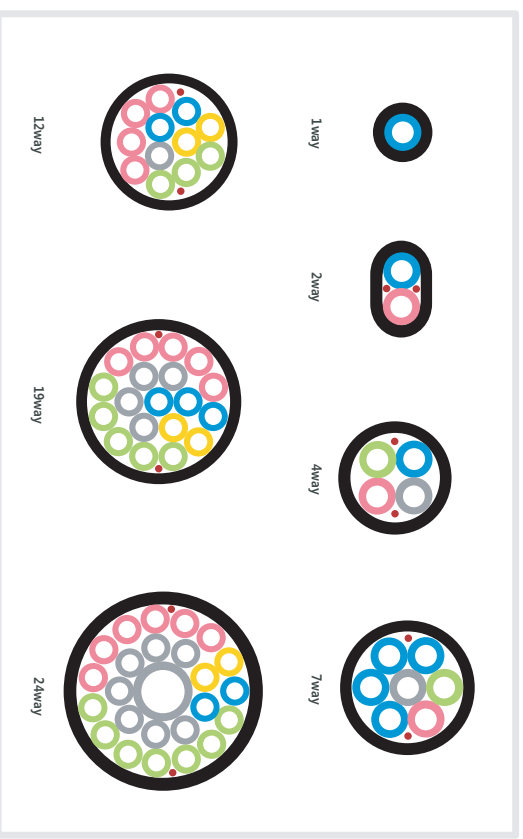


5/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	8	370	38	100	2000	2000	373*900	89	130
2way	8x13	600	62	100	2000	2000	448*1050	145	88
4way	15x1	960	98	190	2000	2000	550*1250	259	36
7way	18	1360	139	220	2000	2000	550*1500	386	29
12way	23x3	2040	209	280	2000	2000	720*1680	558	21
19way	27x3	2870	293	330	2000	2000	1100*1600	726	14
24way	31x4	3500	358	380	2000	1000	1100*1820	895	12

8/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	11	600	65	130	2000	2000	429*1050	150	88
2way	11x19	1100	109	230	2000	2000	550*1280	283	36
4way	22.3	1800	179	270	2000	2000	720*1600	485	21
7way	27	2600	262	320	2000	2000	1100*1600	667	14
12way	35.4	4000	404	420	2000	2000	1100*2070	1037	11

10/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	13	750	77	160	2000	2000	479*1150	178	80
2way	13x23	1290	132	160	2000	2000	550*1550	379	29
4way	27.5	2300	235	330	2000	2000	1100*1600	610	14
7way	33.4	3370	344	410	2000	2000	1100*1920	884	12

12/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	15	890	91	180	2000	2000	550*1250	244	36
2way	15x27	1540	158	180	2000	2000	720*1560	437	22
4way	32.4	2760	282	390	2000	2000	1100*1670	751	12
7way	39.4	4060	415	480	2000	1000	1100*1760	993	13



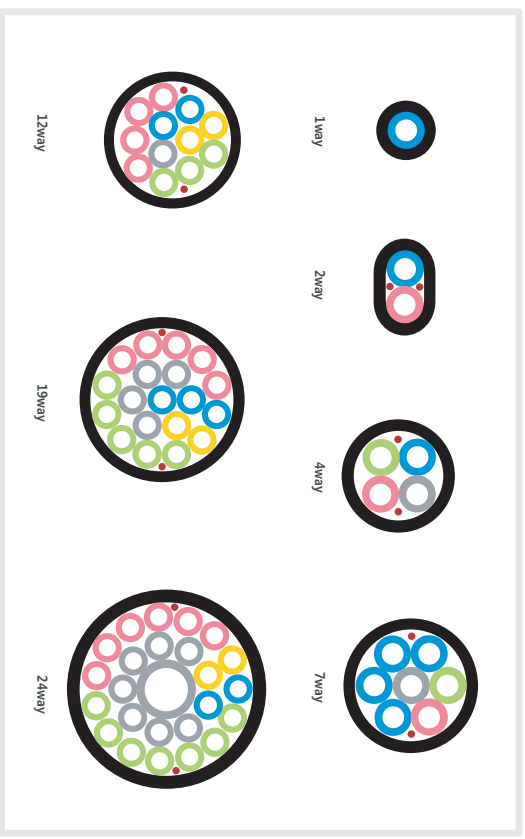


D1 (Direct Installation) microducts with low friction internal coating are suitable for fiber blowing. The microduct is surrounded by a moisture barrier layer made of metallic tape and a flexible sheath of black HDPE. D1 ducts are designed for installation inside existing pipes or sub-ducts.



5/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	8.4	490	51	110	1000	2000	360*900	115	130
2way	8.4 X 13.4	770	79	100	1000	2000	480*1050	180	88
4way	15.5	1,190	122	190	1000	2000	550*1250	305	37
7way	18.4	1,640	168	220	1000	2000	550*1550	440	30
12way	23.7	2,420	247	280	1000	2000	720*1700	630	21
19way	27.7	3,310	338	330	1000	2000	1100*1600	820	14
24way	33.3	4,370	446	400	1000	2000	1100*1910	1100	12

8/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	11.4	800	81	140	1000	2000	430*1050	180	88
2way	11.4x19.4	1,300	131	140	1000	2000	550*1290	330	36
4way	23.1	2,200	224	280	1000	2000	720*1650	580	21
7way	27.8	3,100	318	330	1000	2000	1100*1600	780	14
12way	36.2	4,700	477	430	1000	2000	1100*2060	1180	11



10/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	13.4	960	98	170	1000	2000	480*1140	220	80
2way	13.4 X 23.4	1,590	163	170	1000	2000	550*1570	440	29
4way	27.9	2,730	279	340	1000	2000	1100*1600	700	14
7way	33.8	3,900	398	410	1000	2000	1100*1920	990	12

12/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	15.4	1,130	116	190	1000	2000	550*1250	295	37
2way	15.4 X 27.4	1,900	194	190	1000	2000	720*1560	510	22
4way	32.8	3,270	334	400	1000	2000	1100*1670	850	12
7way	39.8	4,700	480	480	1000	1000	1100*1730	650	13



TWD

14

Thick walled microducts are designed for direct burial and have superior blowing characteristics. Thanks to the sufficient thickness of the wall, it exempts this type of microduct from additional protective ducts. Thick walled microducts can be branched off easily and the primary tube can be directly buried as a single microduct. Also, this solution makes network distribution possible with a simple connector. Any size and color are available on request.



■ **Features**

- Robust, highly resistant to crushing
- Simple line of connectivity products
- Designed for slots and micro-trenches
- Nominal sheath thickness is 1.0 mm

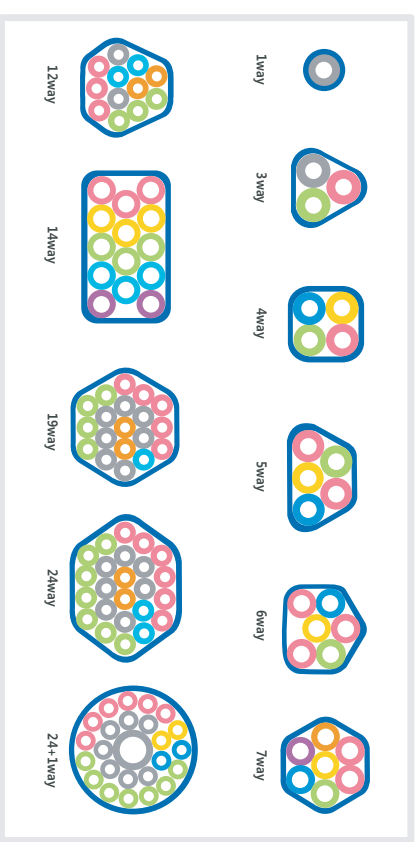
■ **Benefits**

- Can be used in any environment
- Ducts are future proof
- Requires less technical skills and time in the field to make connections



■ **Multi type**

7/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1 way	9.0	500	52	110	1000	2000	450*880	121	104
3way	15.1 X16.0	1,240	127	190	2000	2000	500*1440	359	32
4way	16.0x16.0	1,580	161	200	2000	2000	550*1400	395	33
5way	15.1X23.0	1,910	195	190	2000	2000	720*1400	465	25
6way	19.5X21.1	2,300	228	240	2000	2000	720*1500	540	22
7way	21.1X23.0	2,510	257	260	2000	2000	720*1580	610	22
12way	27.2X30.0	4,050	414	330	2000	2000	1100*1640	935	14
14way	21.1X37.0	4,800	485	250	2000	2000	1100*1670	1120	14
19way	33.2X37.0	6,130	626	400	2000	2000	1100*2050	1460	11
24way	33.2X44.0	7,600	776	400	2000	1000	1100*1660	930	14
24+1way	43.6X43.6	8,440	862	530	2000	1000	1100*1950	1067	12



10/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	12	790	81	150	1,000	2000	1050*154	182	88
3way	20.7 x 22	2,000	205	250	2,000	2000	1600*720	540	21
4way	22	2,560	262	270	2,000	2000	1700*720	667	19
5way	20.7 x 32	3,130	320	250	2,000	2000	1600*1100	780	14
6way	27 x 29.4	3,660	374	330	2,000	2000	1650*1100	898	14
7way	29.4 x 32	4,160	425	360	2,000	2000	1820*1100	1032	12

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12/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	14.0	970	99	170	2,000	2000	450*1350	270	36
3way	24.4x26.0	2,470	253	300	2,000	2000	650*1850	674	18
4way	26.0x26.0	3,170	324	320	2,000	2000	1100*1800	750	14
5way	24.4x38.0	3,870	395	300	2,000	2000	1100*1800	920	13
6way	32.0x34.8	4,530	463	390	2,000	2000	1100*1950	1080	12
7way	32.0x34.8	4,530	463	390	2,000	2000	1100*1950	1080	12

14/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	16.0	1,140	117	200	2,000	2000	450*1480	340	32
3way	28.1x30.0	2,940	301	340	2,000	2000	1100*1800	782	12
4way	30.0x30.0	3,780	386	360	2,000	2000	1100*1800	900	13
5way	28.1x44.0	4,610	471	340	2,000	2000	1100*2070	1110	11
6way	37.0x40.2	5,400	552	450	2,000	1000	1100*1730	695	13
7way	40.2x44.0	6,140	627	490	2,000	1000	1100*1830	790	12

■ Flat type

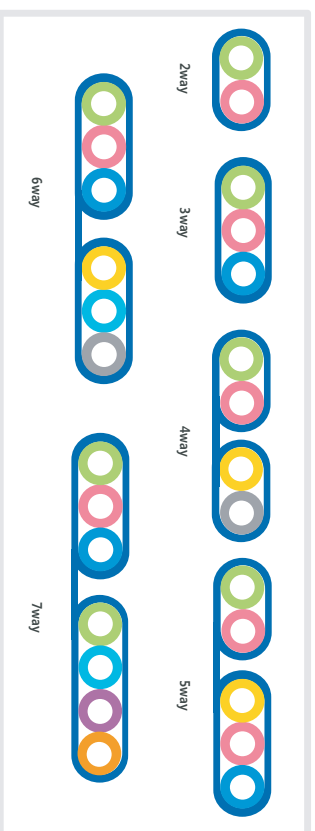
7/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	9.0x16.0	910	93	110	2,000	2000	1150*954	216	80
3way	9.0x23.0	1,310	134	110	2,000	2000	1350*550	359	33
4way	8.6x34.2	1,680	172	100	2,000	2000	1400*720	445	24
5way	8.6x41.2	2,050	210	100	2,000	2000	1500*720	533	22
6way	8.6x48.2	2,430	248	100	2,000	2000	1630*720	629	21
7way	8.6x55.2	2,800	286	100	2,000	2000	1450*1100	692	16

10/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	11.6x21.6	1,340	137	140	2,000	2,000	1250*720	357	27
3way	11.6x31.6	1,960	200	140	2,000	2,000	1520*720	515	22
4way	11.6x46.2	2,720	278	140	2,000	2,000	1520*1100	688	15
5way	11.6x56.2	3,340	341	140	2,000	2,000	1650*1100	832	14
6way	11.6x66.2	3,950	404	140	2,000	2,000	1750*1100	973	13
7way	11.6x76.2	4,570	467	140	2,000	2,000	1850*1100	1115	12

12/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	14.0x26.0	1,780	182	170	2,000	2,000	1460*720	472	24
3way	14.0x38.0	2,590	265	170	2,000	2,000	1500*1100	657	15
4way	13.6x54.2	3,350	342	170	2,000	2,000	1700*1100	839	13
5way	13.6x66.2	4,110	420	170	2,000	2,000	1860*1100	1023	12
6way	13.6x78.2	4,880	498	170	2,000	1,000	1520*1100	630	15
7way	13.6x90.2	5,640	576	170	2,000	1,000	1600*1100	719	14

14/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	16.0x30.0	2,110	216	200	2,000	2,000	1680*720	572	21
3way	16.0x44.0	3,070	314	200	2,000	2,000	1660*1100	777	14
4way	15.6x62.2	3,970	406	190	2,000	2,000	1940*1100	1011	12
5way	15.6x76.2	4,890	499	190	2,000	1,000	1560*1100	634	14
6way	15.6x90.2	5,800	592	190	2,000	1,000	1660*1100	741	14
7way	15.6x104.2	6,710	685	190	2,000	1,000	1760*1100	849	13

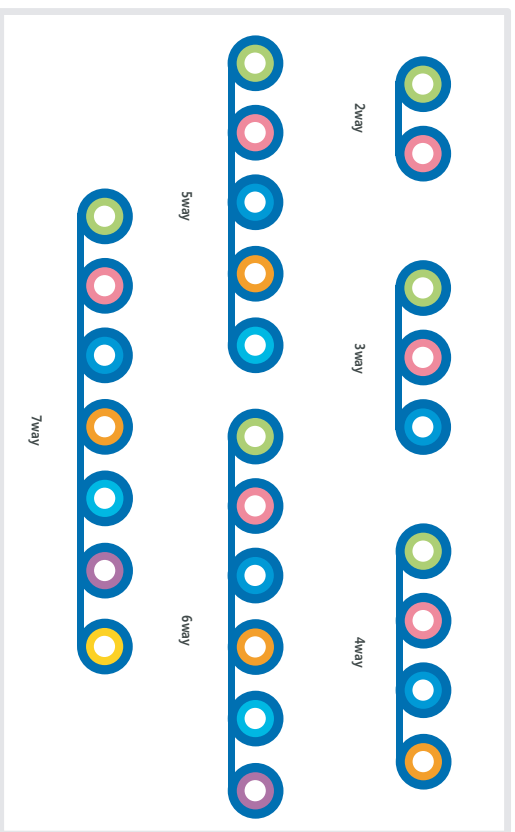
16/12mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	18.0x34.0	2,450	250	220	2,000	2,000	1520*1100	627	15
3way	18.0x50.0	3,550	363	220	2,000	2,000	1800*1100	899	12
4way	17.6x70.2	4,600	470	220	2,000	1,000	1600*1100	613	14
5way	17.6x86.2	5,660	578	220	2,000	1,000	1740*1100	742	13
6way	17.6x102.2	6,720	686	220	2,000	1,000	1860*1100	869	12
7way	17.6x118.2	7,780	794	220	2,000	1,000	1970*1100	1004	12





18/74mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	19,6x37,6	2,580	264	240	2,000	2,000	1,650*1,100	676	14
3way	19,6x55,6	3,790	387	240	2,000	2,000	2,030*1,100	989	11
4way	19,6x78,2	5,230	534	240	2,000	1,000	1,760*1,100	704	13
5way	19,6x96,2	6,430	657	240	2,000	1,000	1,920*1,100	853	12
6way	19,6x114,2	7,640	780	240	2,000	1,000	2,070*1,100	1,006	11
7way	19,6x132,2	8,840	903	240	2,000	1,000	2,180*1,100	1,150	10

Linked type



12/6mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	13,4x35,0	1,790	183	170	2,000	2,000	1,380*1,100	477	16
3way	13,4x56,2	2,730	279	170	2,000	2,000	1,720*1,100	716	13
4way	13,4x77,6	3,680	376	170	2,000	2,000	1,970*1,100	953	12
5way	13,4x99,0	4,620	472	170	2,000	1,000	1,620*1,100	615	14
6way	13,4x120,5	5,560	568	170	2,000	1,000	1,760*1,100	732	13
7way	13,4x142,0	6,310	644	170	2,000	1,000	1,920*1,100	840	12

14/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	15,4x38,8	2,110	216	190	2,000	2,000	1,520*1,100	562	15
3way	15,4x62,2	3,230	330	190	2,000	2,000	1,920*1,100	856	14
4way	15,4x85,6	4,340	443	190	2,000	1,000	1,660*1,100	597	14
5way	15,4x109,0	5,450	557	190	2,000	1,000	1,820*1,100	736	12
6way	15,4x132,4	6,560	670	190	2,000	1,000	1,970*1,100	876	12
7way	15,4x155,8	7,670	783	190	2,000	1,000	2,130*1,100	1,020	11

16/12mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	17,4x42,8	2,450	250	210	2,000	2,000	1,660*1,100	649	14
3way	17,4x68,2	3,720	380	210	2,000	1,000	1,550*1,100	513	14
4way	17,4x93,6	5,000	511	210	2,000	1,000	1,760*1,100	675	13
5way	17,4x119,0	6,280	641	210	2,000	1,000	1,970*1,100	842	12
6way	17,4x144,4	7,560	772	210	2,000	1,000	2,170*1,100	1,017	10
7way	17,4x169,8	8,840	903	210	2,000	800	2,130*1,100	960	11

18/14mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	19,4x68	2,770	283	240	2,000	2,000	1,800*1,100	736	12
3way	19,4x74,2	4,220	431	240	2,000	1,000	1,680*1,100	583	14
4way	19,4x101,6	5,670	579	240	2,000	1,000	1,930*1,100	774	12
5way	19,4x129	7,110	726	240	2,000	1,000	2,170*1,100	971	10
6way	19,4x156,4	8,560	874	240	2,000	800	2,170*1,100	944	10
7way	19,4x183,8	10,010	1,022	240	2,000	700	2,170*1,100	960	10

20/16mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
2way	21,4x50,8	3,090	316	260	2,000	2,000	1,970*1,100	837	12
3way	21,4x80,2	4,710	481	260	2,000	1,000	1,820*1,100	657	12
4way	21,4x109,6	6,330	646	260	2,000	1,000	2,100*1,100	874	11
5way	21,4x139	7,940	811	260	2,000	800	2,100*1,100	877	11
6way	21,4x168,4	9,560	976	260	2,000	700	2,170*1,100	928	10
7way	21,4x197,8	11,180	1,141	260	2,000	600	2,180*1,100	934	10



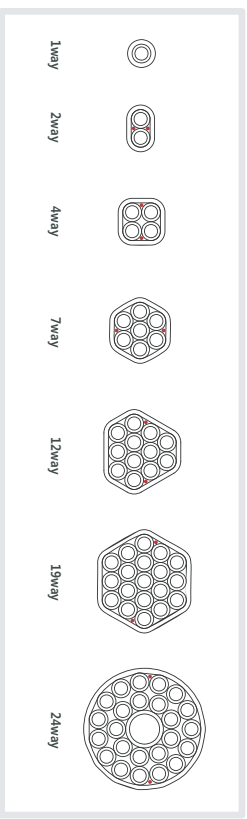
LSZH

LSZH microducts with low friction performance are suitable for fiber blowing. The LSZH protected microduct consist of tubes surrounded by a sheath made of LSZH material, providing excellent performance when exposed to fire. The light weight, metal free and flexible LSZH sheath makes this microduct perfect for indoor installation.



5/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	7.4	230	48	90	700	2000	450*735	105	192
2way	7.4 x 12.4	390	80	90	700	2000	430*980	175	96
4way	12.4 x 14.5	610	125	150	700	2000	480*1190	275	40
7way	16.1 x 17.4	890	183	190	700	2000	550*1440	465	32
12way	20.4 x 22.4	1360	277	240	700	2000	720*1570	675	22
19way	26.1 x 26.7	1,950	399	310	700	2000	1100*1540	930	15
24way	32	2,610	533	380	700	2000	1100*1840	1250	12

12/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	15.4	590	121	190	700	2000	550*1185	300	40
2way	15.4 x 27.4	1,030	211	190	700	2000	720*1510	535	22
4way	32.8	1,700	348	400	700	2000	1100*1620	840	14
7way	39.8	2,610	533	480	700	1000	1100*1620	880	14



Note: sheath thickness: 1.2mm



Hybrid LSZH

The Hybrid LSZH is surrounded with a sheath of a flame retardant, low smoke zero halogen material, providing excellent performance when exposed to fire. The primary tube is made of HDPE and has suitable low friction characteristics on the inside surface.



5/3.5mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	7.0	180	37	90	1000	2000	480*720	84	128
2way	7 x 12	300	62	90	1000	2000	480*910	145	104
4way	12 x 12	470	96	150	1000	2000	480*1040	223	88
7way	15.7 x 17	680	139	190	1000	1000	480*1040	160	88
12way	20 x 22	1020	209	240	1000	2000	720*1580	548	22
19way	24.4 x 27	1450	297	300	1000	2000	720*1900	784	18
24+1way	31.8	1940	397	390	1000	2000	1100*1950	994	12

10/8mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	12.4	430	89	150	1000	2000	480*1060	198	88
2way	12 x 22	730	151	150	1000	2000	400*1600	422	28
4way	22 x 22	1170	240	270	1000	2000	600*1650	610	21
7way	29.7 x 32.4	1740	356	360	1000	2000	1000*1950	902	12

12/10mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Length/drum (m)	Drum size(mm)	Gross weight(kg)	Number of drums in 40'
1way	14.4	510	106	180	1000	1000	500*920	126	104
2way	14.4 x 26.4	880	181	180	1000	2000	600*1600	492	21
4way	26.4 x 26.4	1410	289	320	1000	2000	1000*1680	734	14
7way	35.2 x 38.4	2100	429	430	1000	2000	1100*2200	1148	10

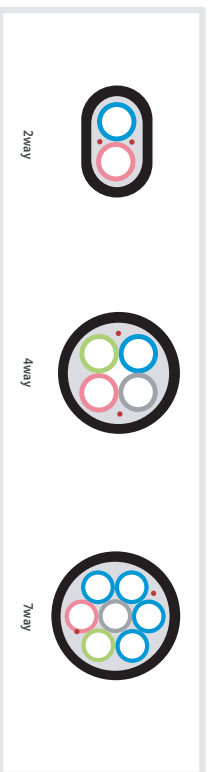


DBR 22

The tube bundle is surrounded by a filler and a flexible sheath. The outer sheath is PE providing excellent protection from the physical environment. DBR provides better water blocking and low thermal length changes.



10/8 mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Standard length /drum	Drum size	Gross weight	Number of drums in 40
2way	17.0x27.0	3,100	314	320x200	3500	2000	720*1670	765	21
3way	17.0x37.0	4,300	443	440x200	3500	2000	720*1900	1060	18
4way	31.1	5,800	590	370	3500	2000	1100*1280	1350	13
7way	37.0	7,400	753	440	3500	1000	720*1940	940	12
12/10 mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Standard length	Drum size	Gross weight	Number of drums in 40
2way	19 X 31	3,690	377	230	4500	2000	720*1870	920	18
3way	19.0x33.0	5,300	539	520x230	3500	2000	1100*1750	1240	13
4way	36	7,280	743	440	1000	36	1100*1590	885	14
7way	43	9,240	943	520	4500	1000	1100*1890	1170	12
16/13.5 mm	OD(mm)	Max. Tensile(N)	Weight (kg/km)	Bend Radius (mm)	Crush (N)	Standard length	Drum size	Gross weight	Number of drums in 40
4way	46.7	9,890	1010	940	4,000	1000	2100*1100	1252	10
7way	56	12,340	1,260	1,120	4,000	500	2000*1100	1510	12



Note: color of primary tubes can be changed



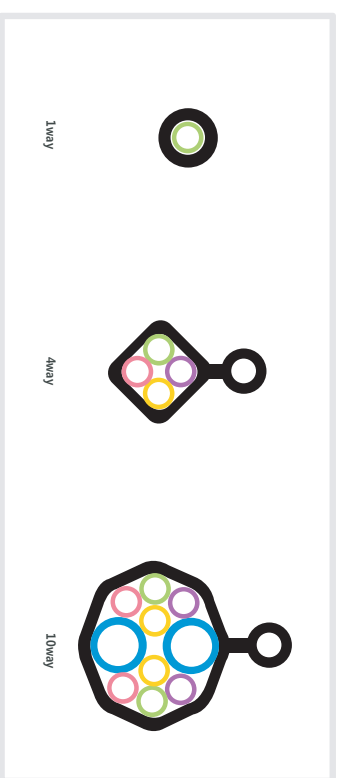
Aerial 23

Aerial microducts have been developed to facilitate the use of optical fiber subscriber drop cables. Aerial ducts can withstand their stringing tension before breaking and resist serious overloads due to unfavorable conditions.



- High UV resistance for outdoor use
- Figure-8 design keeps the strength member and tube bundle separate from each other
- Two types of strength members are available: metal and non-metal
- Tube dimension (OD/ID) 5/3.5, 8/6, 10/8, 12/10 mm

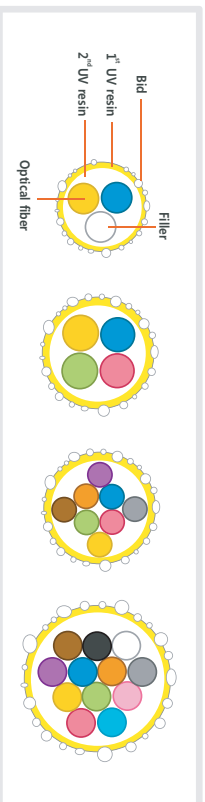
Item	Nominal Outer Diameter (mm)	Nominal Weight (kg/km)
10 Tubes Cable	27 x 36	280
4 Tube Cable	12 x 24	120
1 Tube Cable	8	35





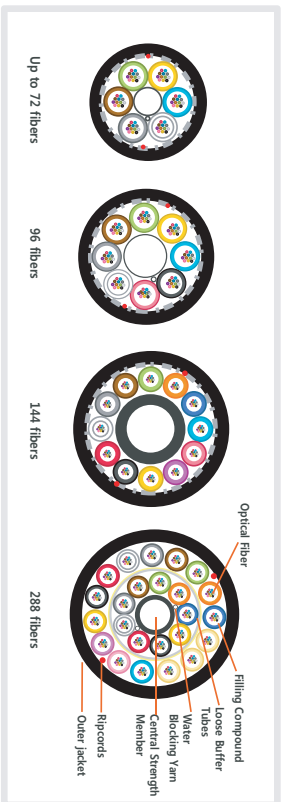
Air Blown Fiber

- Single-mode, Multimode 50/125, Multimode 62.5/125
- Hybrid (SMF + MMF) and special fibers, including fibers with high bending performance
- Other configurations are also available



Units	2 fiber	4 fiber	8 fiber	12 fiber
Diameter	1.02±0.05mm	1.02±0.05mm	1.40±0.05mm	1.60±0.10mm

Air Blown Cable



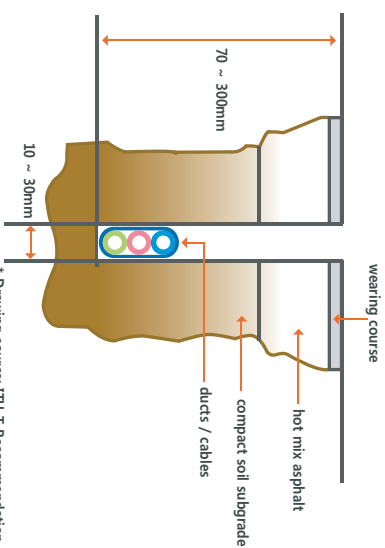
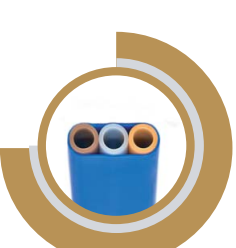
Items		Specifications			
Fiber counts		72	96	144	288
Max.Outer diameter (mm)		6.0	6.8	7.9	10.9
Cable weight (kg/km)		30	40	50	90
Min.bending radius	Under load	120	140	160	280
Tensile Loading (N)	Under load	550	750	950	2000
Applicable microduct inner diameter (mm)	Over	8	10	10	13



Mini trenching is commonly used way of installing microduct underground. Mechanical trenchers cut slots 150 to 400 mm deep and 70 to 150 mm wide, using a Tungsten Carbide tipped wheel. The mini-trench is backfilled by pouring concrete with suitable foaming additives. The trenching method is fast and inexpensive.



Micro trenching is the most cost effective way to install optic fiber/cable underground. Mechanical trenchers cut small slots 70 to 300 mm deep and 10 to 30 mm wide, either using a Wet Diamond Cutter or Dry/Tungsten Carbide Cutter, especially customized for trenching.



* Drawing source: ITU-T Recommendation L48

