



**Dura-Line Product Solutions**

# CREATING WHAT CONNECTS US





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In the next decade, the Internet of Things (IoT) and the 4<sup>th</sup> Industrial Revolution will bring 50 billion devices online and provide access to the internet to the rest of the world's population. Dura-Line provides the essential infrastructure to make this possible."

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# DURA-LINE IS TRANSFORMING THE STRUCTURE OF COMMUNICATIONS

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**Technology, data, and constant communication** are more intertwined with our daily lives than ever before. In the next decade, the Internet of Things (IoT) and the 4<sup>th</sup> Industrial Revolution will bring 50 billion devices online and provide access to the internet to the rest of the world's population. Dura-Line provides the essential infrastructure to make this possible. Our products are designed to provide protection and fast, safe, installation of communication networks and power cables for a wide variety of markets, including telecommunications, enterprise networking, energy, and transportation.

Through our innovative product solutions and unparalleled customer insight, Dura-Line creates what connects us.

**With 20 locations worldwide**, covering Europe, the U.S., Canada, India, and Oman, Dura-Line is the only global provider of fiber optic cable pathways that build robust, scalable, communications infrastructure. Our teams of highly trained and specialized engineers have been hands-on problem-solving with the telecommunications industry since the dawn of cell phones. Dura-Line is at the forefront of the industry creating strategic solutions that solve the issue of the unpredictable needs of tomorrow's fiber cable requirements.

In Europe, Dura-Line has manufacturing plants in Czech Republic, France and Poland as well as a world-class testing facility in France.

**Why? Because by 2023 our internet network infrastructure will facilitate:**

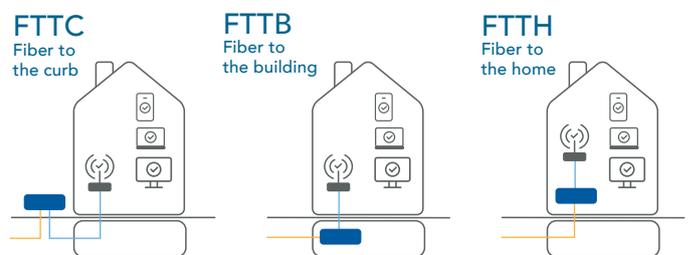


# APPLICATIONS

The availability of a strong broadband connection is important for daily life and the economic development of cities and rural communities. Fibre networks are recognised around the world as the best long term solution for data connectivity with government-funded projects expediting broadband roll out for industrial, and private customers.



There are various stages of fiber optic network deployment:



The fast growth of internet use and data-driven online services is challenging our existing telecommunications systems and forecast demand for more bandwidth requires a flexible approach to fiber optic network design.

Dura-Line offers a wide range of products and solutions to simplify the deployment of fiber networks in the most future-proof possible manner.

## Our conduit solutions are ideal for various applications:

- FTTx Deployment
- Enterprise Networks
- Metropolitan Networks (Smart Cities)
- Backbone Network Infrastructure
- Cable TV
- In-Building Installations
- Multiple Dwelling Units
- Railway and Road Tunnels
- Aerial Overhead Networks

# CONTROL

Across the globe, our ISO certified quality regime demands a wide range of tests to ensure consistent high performance from our products. All our production and quality measurement records are stored and fully trackable and available to customers for quality inspections or review. Typical tests include:

## Produktion

- **BB Test** – Steel ball with a diameter of the minimum of 80% of the product internal diameter is blown into the duct, to confirm that the inner diameter meets specification.
- **Operational Pressure Test** – Ducts are pressurized up to 6-12 bar to confirm no leakage.

## Laboratory

- **Dimension Check** – Measurement of the duct inner and outer diameter, wall thickness and ovality.
- **Tensile Strength** – Duct samples are pulled to their yield point, to detect any change in material composition.
- **Crushing** – Conduit is compressed to verify outer pressure resistance.
- **Inner Friction** – Confirmation that the duct inner layer meets the required static friction limit.
- **Bending Test** – A sample of the duct, located on two supports, is bent to check that sagging does not exceed specification.
- **Thermal Shrinkage** – Duct must not shrink/expand excessively when subject to temperature changes.
- **Print Quality** – Text printed on duct must remain legible even after exposure to cleaning agents.
- **Environmental Stress Crack Resistance** – Materials used in production must remain stable after being exposed to a combination of a surface-active agents, bending and elevated temperatures, for 1000 hours.
- **Oxidation-induction Time** – The time needed for the material to start thermos-oxidation processes.



Dura-Line is certified to ISO 9001 ISO 14001 and ISO 45001.

- **Long-term Internal Creep Compressive Test** – Duct is pressurized according to sigma pressure within a range of 4.0 to 4.6 MPa for 170 hours, in an 80 °C bath with no leakage accepted. Testing conditions may also be modified to include the effect of ice formation, either inside or outside of a tested duct.
- **Burst Pressure** – At ambient temperature, a duct sample is pressurized until it breaks.
- **Microscopic Analysis of Impurities Contained in the Product**
- **Cable Blowing Performance Simulation using outdoor testing loop** – Microcables as per customer requirements are blown into microducts in outdoor testing facility. The procedure is aimed at verification of real field blowing performance of Dura-Line products with specific cables.
- **Flame Chamber** – Microducts with reduced flammability are exposed to free burning, using a burner with defined flame intensity. The test is performed in a steel chamber, insulated safely from the circumjacent laboratory.



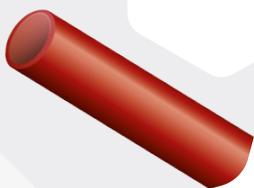
By the end of 2021, all 3 European locations will obtain the SKZ certification. Dura-Line will hold the distinction as the only MicroDuct manufacturer in Europe with this designation.

# DISCOVER OUR INNOVATIVE PRODUCTS

Dura-Line provides the essential foundational infrastructure for data communications around the globe. Our innovative products serve as solutions that address the key challenges of humanity.

- Follows EU requirements for in-house installations, offering the highest fire classification available
- Halogenfree standards according to DIN-EN 50642
- Smoke emission based on DIN EN 61034-2

DuraOpto

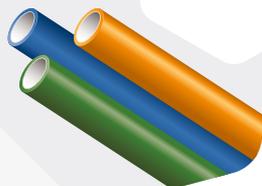


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#### Standard Silicore™ lined HDPE duct

- Outside diameter from 20mm to 63mm
- Internal Silicore™ Lubrication layer
- Wide range of standard and customer dimensions
- Optional colour, stripe and printing

DuraMicro



PAGE  
12

#### Space efficient MicroDucts

- Outside diameter from 4mm to 18mm
- Ideal for installation in existing duct or direct buried
- High network flexibility
- Rapid install

DuraMulti



PAGE  
14

#### Pre-configured bundles of MicroDucts

- Minimizes installation cost and time
- Maximizes space usage
- Eliminates crossed duct pinch-points
- Ideal for future-proof, flexible networks
- Individual protection for shared conduits



**Specially designed for in-building applications**

- Reduces harmful effects of burning and fire
- Available in both DuraMulti and DuraMicro configurations
- Halogen free standards to DIN-EN 50642 and Smoke emissions to DIN EN 61034-2



**Pre-configured MicroDuct bundles**

- Ideal for micro-trenching
- Minimizes installation cost and time
- Eliminates crossed duct pinch-points
- Highly flexible during installation



**Pre-configured flat MicroDuct bundles**

- Ideal for micro-trenching
- Minimizes installation cost and time
- Eliminates crossed duct pinch-points
- Highly flexible during installation



**Pre-configured duct with subducts**

- High impact resistance
- Minimizes installation cost and time
- Improves space utilization
- Highly flexible and future proof



**Pre-configured bundles for demanding applications**

- High tensile strength for demanding pull-in applications
- High scratch resistance during the pulling process
- Stiff construction to prevent undulations



**Airborn MicroDuct for overhead future proofing**

- Lightweight metal free construction
- High UV resistance
- EN 60794 compliant
- DuraAir is particularly suitable for rural regions

# DuraOpto

Dura-Line's DuraOpto ducts are made from High Density Polyethylene (HDPE) and are lined with Dura-Line's Silicore™ permanently lubricated lining as standard.

DuraOpto ducts come ready for direct burial (DB) or with thinner walls for duct installation (DI).

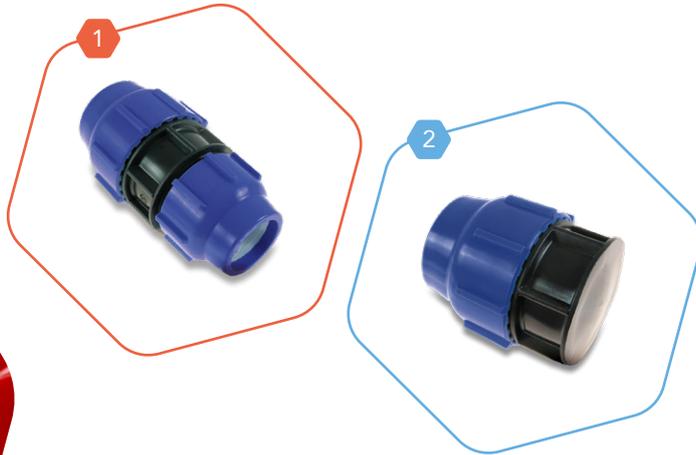
## Key characteristics:

- Any size from Ø 20 to > 63mm
- Internal low friction layer + optional internal ribs to maximize blowing performance
- Pressure resistant to 15 bars
- Improved UV resistance
- Can be delivered on drums or coiled with several lengths on one drum

## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

- 1 DuraOpto Connectors and Reducers
- 2 DuraOpto Endstops



## DuraOpto Direct Install (DI)

DuraOpto (OD/ID mm)	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
20/16	120x52x50	1000	183
	150x67x60	2000	353
25/21	150x67x60	1250	329
	190x90x100	3000	642
32/28	190x90x100	1750	614
	225x90x100	2750	931
40/34	190x90x100	1000	557
	225x90x100	1750	904
50/42,6	240x120x100	1000	863

## DuraOpto Direct Bury (DB)

DuraOpto (OD/ID mm)	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
20/15	120x52x50	1000	183
	150x67x60	2000	253
25/20	150x67x60	1250	369
	190x90x100	3000	737
32/26,2	190x90x100	1750	671
	225x90x100	2750	1022
40/33	190x90x100	1000	609
	225x90x100	1750	995
50/40,8	240x120x100	1000	979

# DuraMicro

DuraMicro is manufactured from High Density Polyethylene (HDPE) for both Direct Insert and Direct Bury installation.

Direct Install (DI) versions are designed to be blown or pulled into an existing conduit.

Direct Buried (DB) Microducts have higher impact and crush resistance making them suitable for direct burial.

We also offer low smoke, halogen free, MicroDucts, for indoor installation.

## Technical Features:

- Silicore™ permanently lubricated lining as standard
- Wide range of dimensions from 4mm to 20mm
- Customizable – color, stripes and print

## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

- 1 DuraFit Reducer
- 2 DuraFit Connector
- 3 DuraGasBlock Connector/Reducer
- 4 DuraFit Endstop



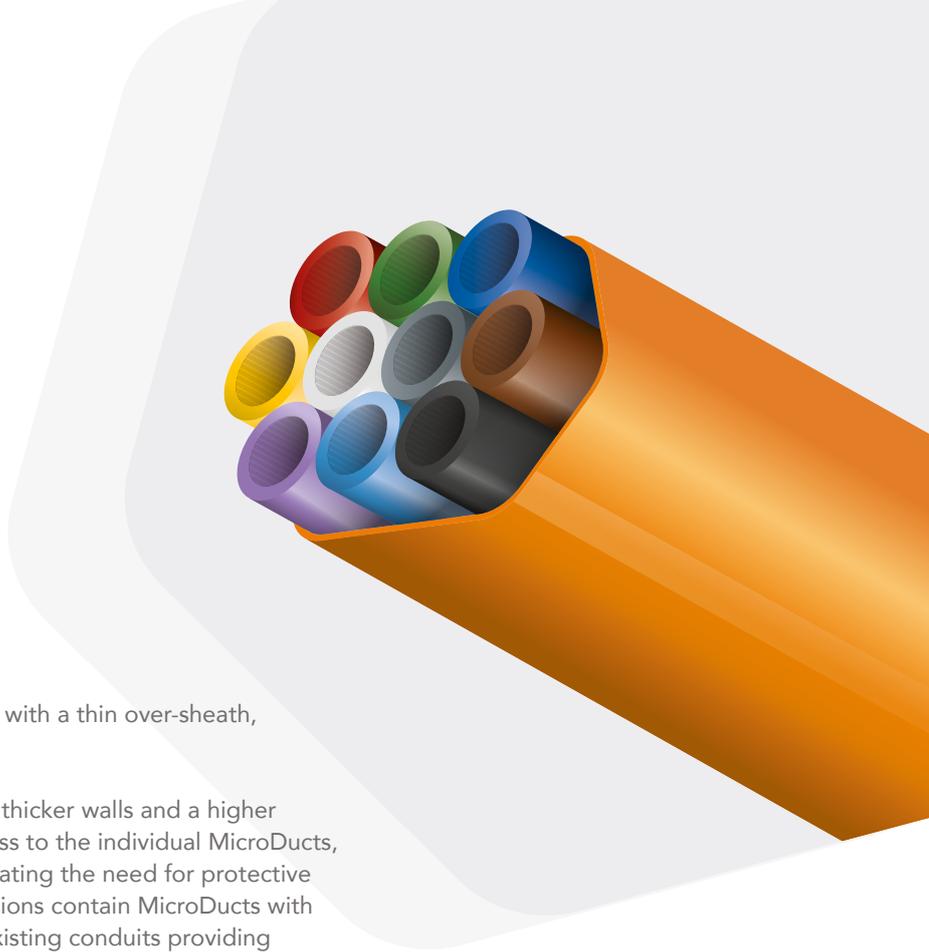
## DuraMicro Direct Install (DI)

DuraMicro (OD/ID mm)	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
4/3	60x40x47	4000	27
5/3,5	60x40x47	2250	27
	120x46x35	5000	68
7/5,5	60x40x47	1250	23
	120x46x35	5000	91
8/5,5	60x40x47	1000	31
	120x46x35	4500	134
10/8	60x40x47	500	19
	120x46x35	2500	88
12/9,6	120x46x36	2000	98

## DuraMicro Direct Bury (DB)

DuraMicro (OD/ID mm)	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
7/4	60x40x47	1250	40
	120x46x35	5000	144
7/3,5	60x40x47	1250	40
	120x46x35	5000	158
10/6	60x40x47	500	30
12/8	120x46x35	2000	140
14/10	120x46x35	1500	128
16/12	120x46x35	1250	125
18/14	120x52x50	1000	182
	150x67x60	2500	399
20/15	120x52x50	1000	217
	150x67x60	2000	421

# DuraMulti



DuraMulti ducts are pre-configured microduct bundles with a thin over-sheath, designed for quick, one-step installation.

Our Direct Bury (DB) versions contain MicroDucts with thicker walls and a higher crush resistance. The thin over-sheath allows easy access to the individual MicroDucts, which can be connected with simple connectors eliminating the need for protective enclosures and branch-off boxes. Direct Insert (DI) versions contain MicroDucts with thinner walls and are designed to be installed inside existing conduits providing multiple pathways for cable installations. They are typically pulled into main conduits from manhole-to-manhole or inside MDUs as a main riser duct route.

DuraMulti bundles allow the combination of different size MicroDucts under an over-sheath creating highly.

## Technical Features:

- Exceptional network flexibility
- Customized configurations
- No special tools - uses industry standard tools
- Very high crush resistance

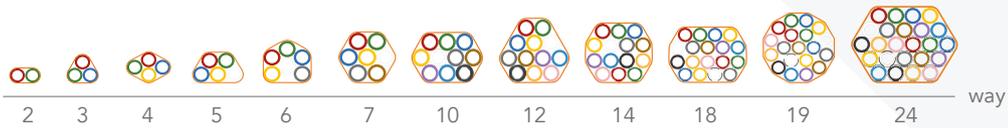
## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

- 1 DuraFit Reducer
- 2 DuraFit Connector
- 3 DuraGasBlock Connector/Reducer
- 4 DuraFit Endstop



We manufacture DuraMulti in the following standard configurations for faster availability. Custom configurations are also available.



### DuraMulti configurations for Ø7/4 and 7/3.5 MicroDucts

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
2x	120x46x35	2250	192
	120x52x50	3000	311
3x	120x46x35	1250	153
	150x60x67	3500	520
4x	120x46x35	1250	190
	150x60x67	3500	623
5x	120x52x50	1000	247
	150x60x67	2500	562
6x	120x52x50	1000	275
	150x60x67	2250	584
7x	120x52x50	1000	301
	150x60x67	1750	532
	190x90x100	4000	1086
10x	150x60x67	1250	521
	190x90x100	3000	1103
12x	150x60x67	1000	506
	225x90x100	3500	1546
14x	150x60x67	1000	560
	225x90x100	3500	1735
18x	150x60x67	750	538
	225x90x100	3000	1853
24x	190x90x100	1250	1055
	225x90x100	2000	1649

### DuraMulti configurations for Ø10/6mm MicroDucts

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
2x	120x46x35	1250	188
	150x60x67	3000	550
3x	120x52x50	750	223
	150x60x67	2000	526
4x	120x52x50	750	264
	150x60x67	1750	574
5x	150x60x67	1250	521
	190x90x100	3000	1103
6x	150x60x67	1000	500
	225x90x100	4000	1749
7x	150x60x67	750	449
	190x90x100	2000	1010
	225x90x100	3000	1548
10x	190x90x100	1500	1035
	225x90x100	2500	1722
12x	190x90x100	1250	1035
	225x90x100	2000	1666
14x	190x90x100	1000	972
	225x90x100	1750	1680
18x	190x90x100	1000	1177
	225x90x100	1500	1797
24x	240x120x100	1000	1055

### DuraMulti Configurations for Ø12/8mm MicroDucts

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
2x	120x52x50	1000	246
3x	120x52x50	500	199
	150x60x67	1250	441
	225x90x100	4500	1349
4x	150x60x67	1250	496
	225x90x100	4000	1406
5x	150x60x67	750	426
	190x90x100	2000	948
	225x90x100	3000	1404
6x	150x60x67	750	475
	190x90x100	1500	862
	225x90x100	2750	1492
7x	190x90x100	1250	831
	225x90x100	2000	1291
10x	190x90x100	1000	894
	225x90x100	1500	1323
12x	190x90x100	750	825
	225x90x100	1250	1322
14x	240x120x100	1250	1512
18x	240x120x100	1000	1530

### DuraMulti Configurations for Ø14/10mm MicroDucts

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
2x	120x52x50	750	167
	150x60x67	1750	492
	190x90x100	4000	993
3x	150x60x67	1000	427
	190x90x100	2000	765
	225x90x100	3500	1268
4x	150x60x67	750	418
	190x90x100	1750	927
	225x90x100	3250	1463
5x	150x60x67	500	369
	190x90x100	1500	870
	225x90x100	2250	1288
6x	190x90x100	1000	730
	225x90x100	2000	1335
7x	190x90x100	1000	804
	225x90x100	1500	1187
10x	225x90x100	1250	1319



## DuraMulti Configurations for Ø16/12mm MicroDucts

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
2x	150x60x67	1250	434
	225x90x100	4000	1208
3x	150x60x67	750	391
	190x90x100	1500	694
4x	225x90x100	2750	1183
	190x90x100	1500	836
5x	225x90x100	2500	1340
	190x90x100	1000	722
6x	225x90x100	1750	1193
	190x90x100	750	664
7x	225x90x100	1250	1053
	240x120x100	1500	1233
7x	240x120x100	1250	1190

## DuraMulti configurations for Ø20/15mm MicroDucts

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
2x	150x60x67	750	410
	225x90x100	3250	1427
3x	190x90x100	1000	709
	225x90x100	1750	1170
4x	190x90x100	1000	894
	225x90x100	1500	1323
5x	225x90x100	1000	1137
6x	240x120x100	750	1070
7x	240x120x100	750	1176

## Special DuraMulti Configurations

Custom configurations available, please contact your sales representative for more information.

Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
8x7/4+1x12/8	150x60x67	1000	473
	225x90x100	4000	1592
22x7/4+1x12/8	190x90x100	1000	917
	225x90x100	1750	1534
12x7/4+1x14/10	150x60x67	1000	466
	225x90x100	2750	1169
24x7/4+1x14/10	190x90x100	1000	1006
	225x90x100	1500	1492

# DuraMulti LSHF



Dura-Line has a wide range of LSHF (Low Smoke Halogen Free) products, including LSHF grade MicroDucts and MicroDuct bundles (DuraMulti). The Dura-Line LSHF range is especially made for application inside of buildings to reduce harmful effects of burning and fire.

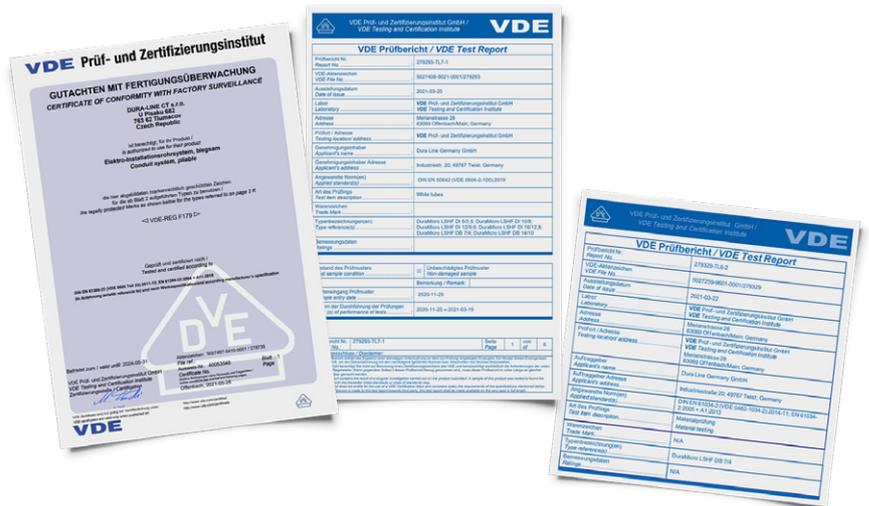
## Key Characteristics:

- Follows EU requirements for in-house installations, offering the highest fire classification available (B S1 D0) in the European market according to EN 13501-1 + A1:2010
- Halogen free standards according to EN 50642
- Smoke emission based on EN 61034-2
- VDE certificate of conformity with factory surveillance tested and certified according to EN 61386-22 (VDE 0605 Part 22):2011-12; EN61386-22:2004 + A11:2010 VDE- REG F 179

## Accessories

In Europe, all in-house installations with MicroDucts and MicroDuct bundles need to follow the local regulations to prevent fire damage and the harmful effects of fire.

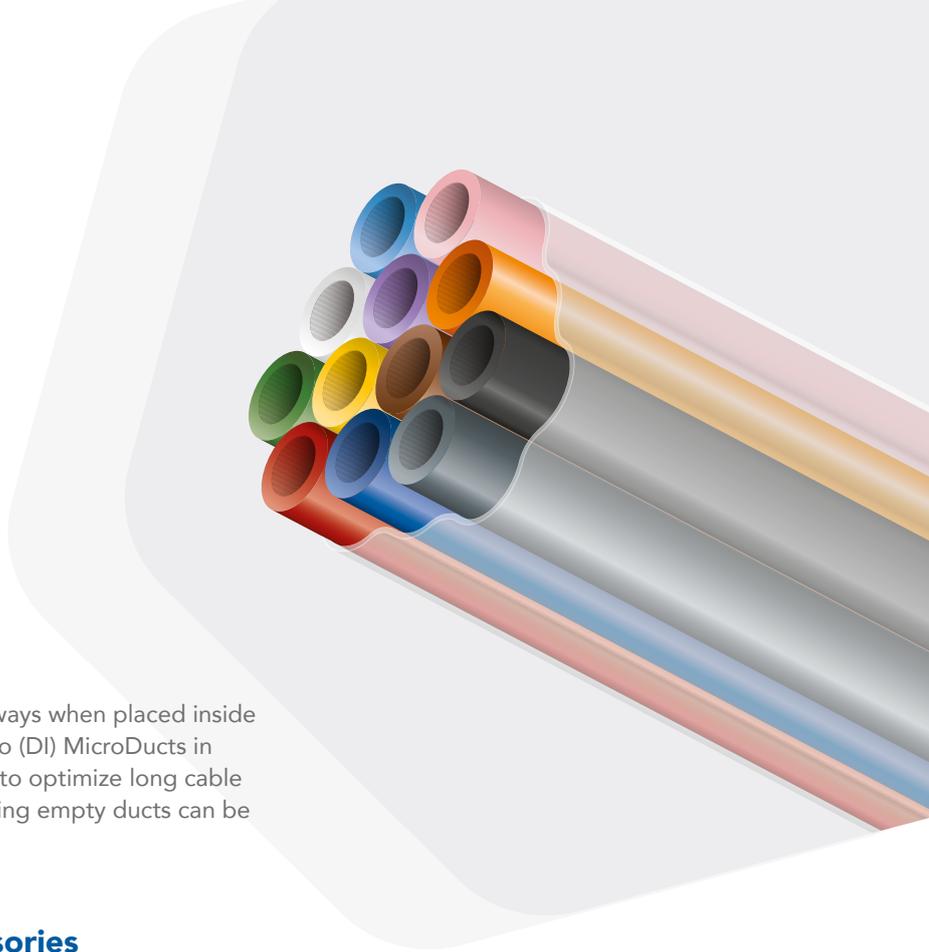
Dura-Line offers its full MicroDuct and DuraMulti catalogue in LSHF as an option and is extending its range with supporting LSHF accessories.



Smoke emission test applies for all MicroDuct sizes



# DuraSpeed



DuraSpeed's lightweight design creates multiple pathways when placed inside an existing, unoccupied route. Comprised of DuraMicro (DI) MicroDucts in several configurations. Long segments can be created to optimize long cable blowing distances. Installation of DuraSpeed into existing empty ducts can be accomplished by blowing, pulling or pushing.

## Technical Features:

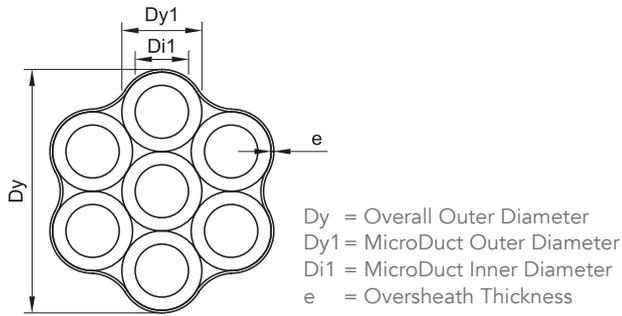
- Made from HDPE (High Density Polyethylene)
- Pressure resistance up to 15 bar
- High-quality materials formulated for long-life expectancy
- Thin outer sheet for compact construction
- Inner friction of microducts < 0,1
- Long blowing distances at optimal fill ratio of 80%
- During installation, no need to pressurize individual DuraMicro pathways
- Lower total costs with reduced handling requirements
- Detailed specifications on request

## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

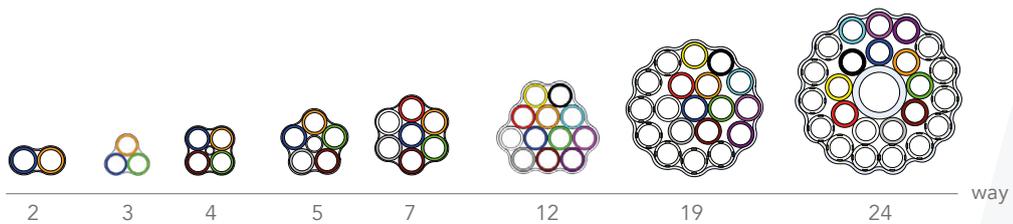
- 1 DuraFit Reducer
- 2 DuraFit Connector
- 3 DuraGasBlock Connector/Reducer
- 4 DuraFit Endstop





### DuraSpeed HDPE Configurations

Size + Configuration	Outer Diameter (mm)	MicroDuct ID (mm)	MicroDuct OD (mm)	Oversheath Thickness (mm)	Length (m)	Drum Dimensions (cm) (height x core x width)
7x5/0,6	16	3,8	5	0,5	2000	150x52x50
24x5/0,6	31	3,8	5	0,5	2000	210x110x100
24x5/0,75	31	3,5	5	0,5	2000	210x110x100
4x10/1,0	25	8,0	10	0,5	2000	160x80x100
5x10/1,0	28	8,0	10	0,5	2000	190x100x100
7x10/1,0	31	8,0	10	0,5	2000	210x110x100
3x12/1,2	26,9	9,6	12	0,5	2000	190x100x100



Other drums, configurations and lengths on request.  
 Also available with antistatic inner layer for fiber bundle.

# DuraFlat

DuraFlat products consist of MicroDucts in a flat configuration connected with a thin webbing. This unique shape is primarily used for the last-mile connection direct to consumers. It's flexible design allows DuraFlat to be direct buried, and ideal for MicroTrenching and indoor applications.

## Technical Features:

- Highly flexible – horizontal/vertical folded shape installation
- Up to 8 MicroDucts in one bundle
- Minimum accessories – eliminates enclosures and duct gas seals

## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

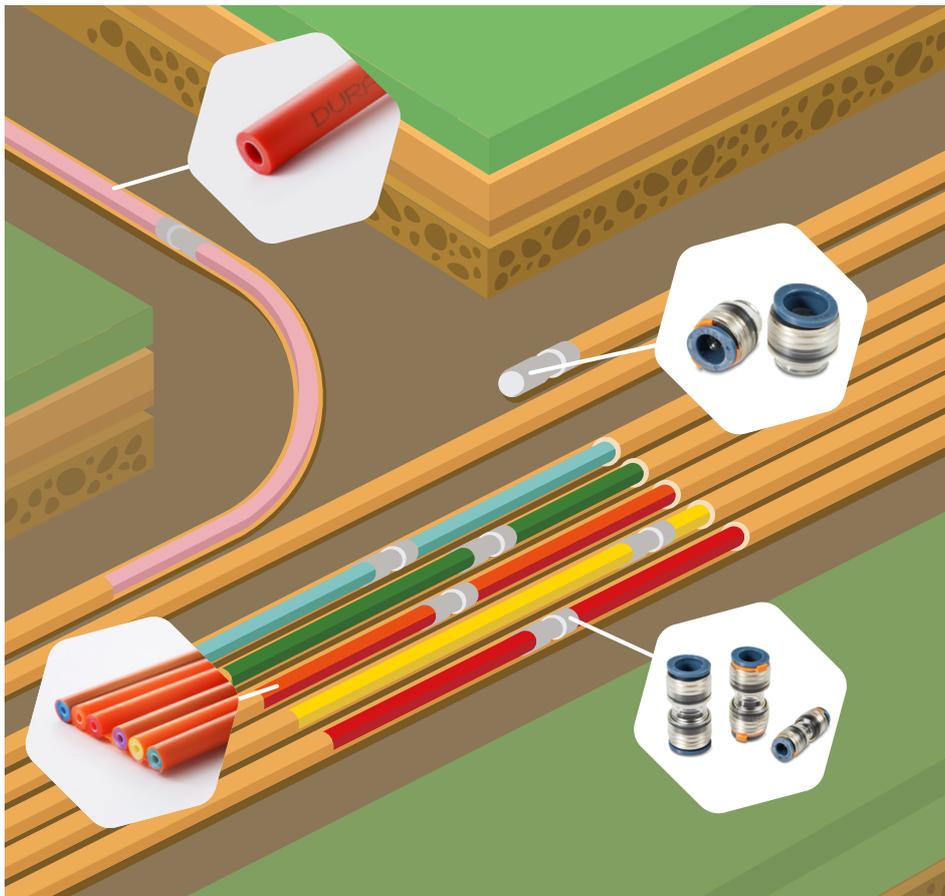
- 1 DuraGasblock Terminator
- 2 DuraFit Connector
- 3 DuraFit Endstop



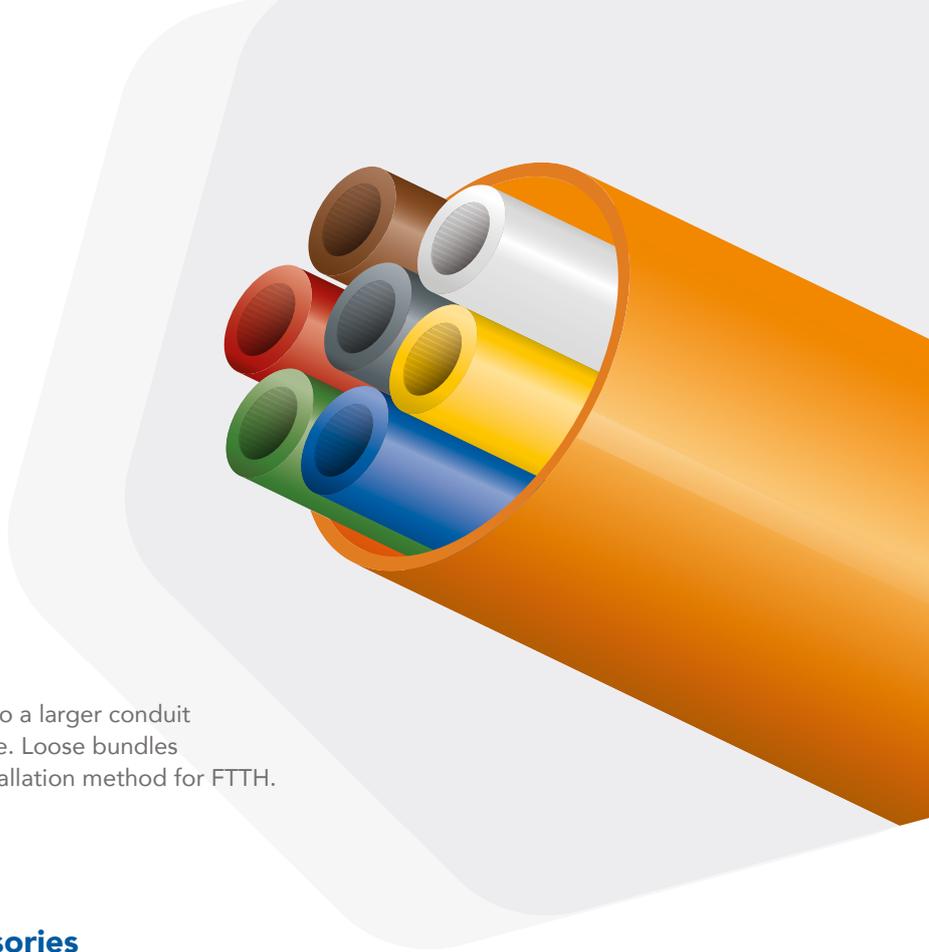
## DuraFlat Configurations

DuraMicro (OD/ID mm)	Config x	Drum Dimensions (cm) (height x core x width)	Length per drum (m)	Total Weight (Drum + Conduit) kg
5/3,5	4x	120x52x50	2000	234
12/18	4x	190x90x100	2000	792
14/10	4x	150x60x67	750	435
		190x90x100	1750	972
	5x	190x90x100	1250	825
		225x90x100	1750	1280
16/12	7x	225x90x100	1500	1383
	6x	225x90x100	1500	1350
	8x	225x90x100	1000	1234
20/16	4x	225x90x100	1250	1414
	6x	225x90x100	750	973

More dimensions on customer request possible



# DuraPack



DuraPack provides MicroDucts factory pre-installed into a larger conduit with more efficiency than can be easily achieved on site. Loose bundles of MicroDucts within a larger conduit are a proven installation method for FTTH.

## Technical Features:

- Flexible network configuration – combinations on request
- Highly impact resistant for protection of Microducts
- Best cable jetting performance
- Effectively utilizes duct space – higher fill ratio compared to jetting on site
- Future proof solution – main duct filling can be re-configured

## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

- 1 DuraMulti MicroDucts Seal
- 2 DuraPack MicroDucts Seal
- 3 DuraPack MicroDucts Seal Temp
- 4 DuraPDC

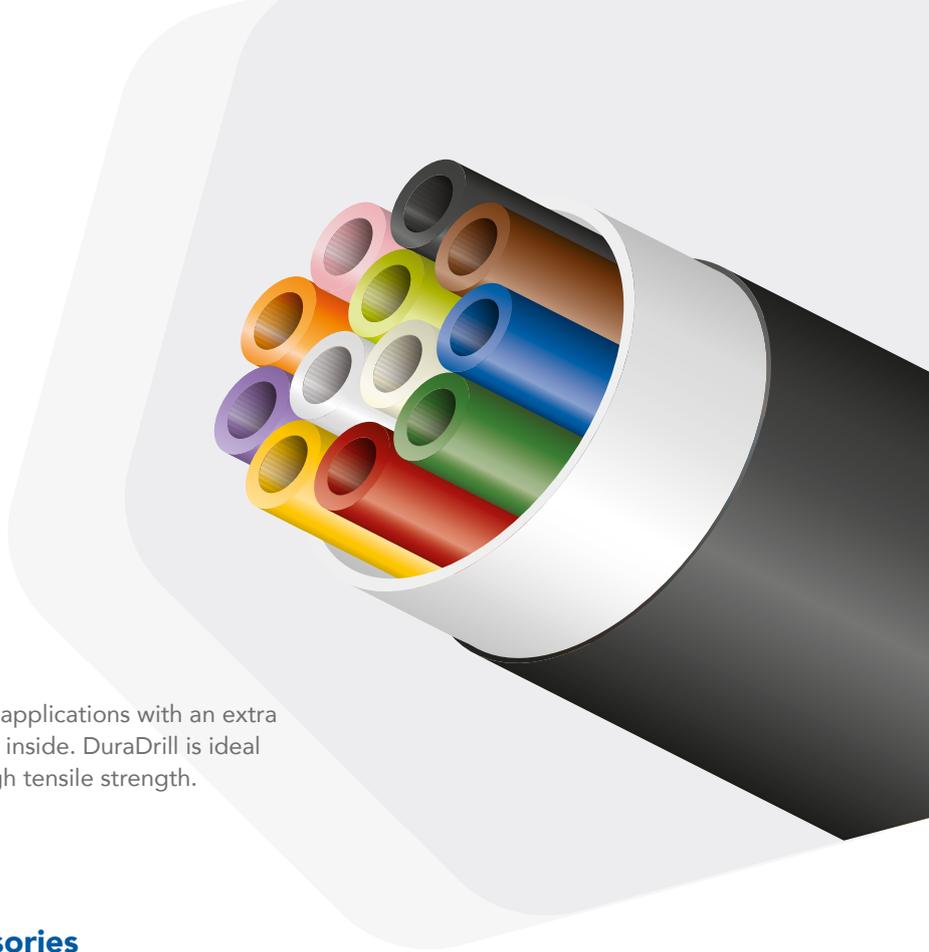


## Standard DuraPack Configurations

DuraOpto (OD/ID mm)	DuraMicro (OD/ID mm)	Configuration (# of MicroDucts)	Drum Dimensions (cm) (height x core x width)	Length per Drum (m)	Total Weight (Drum + Conduit) kg
50/43	14/12	5	240x140x100	1000	1075
50/43	12/10	7	240x140x100	1000	1100
50/43	10/8	10	240x140x100	1000	1145
50/43	7/5,5	14	240x140x100	1000	1071
50/40,8	12/10	7	240x140x100	1000	1264
50/40,8	10/8	7	240x140x100	1000	1222
50/40,8	7/5,5	12	240x140x100	1000	1244
50/40,8	5/3,5	24	240x140x100	1000	1262
40/34	12/10	5	240x140x100	1500	1285
40/34	10/8	7	240x140x100	1500	1164
40/34	7/5,5	12	240x140x100	1500	1135
40/34	5/3,5	24	240x140x100	1500	1222
40/33	12/10	4	240x140x100	1500	1165
40/33	10/8	7	240x140x100	1500	1190
40/33	7/5,5	10	240x140x100	1500	1133
40/33	5/3,5	19	240x140x100	1500	1233
32/28	12/10	3	240x120x100	2750	1205
32/28	10/8	4	240x120x100	2750	1114
32/28	5/3,5	19	240x120x100	2750	1312
32/26	10/8	3	240x120x100	2750	1268
32/26	7/5,5	8	240x120x100	2750	1353
32/26	5/3,5	12	240x120x100	2750	1310
25/21	5/3,5	7	225x90x100	4000	1128
25/20	7/5,5	4	225x90x100	4000	1196
25/20	5/3,5	4	225x90x100	4000	1138

More dimensions on customer request possible

# DuraDrill



DuraDrill ducting is designed for the most demanding applications with an extra thick jacket to protect the Direct Bury (DB) MicroDucts inside. DuraDrill is ideal for demanding pulling applications requiring a very high tensile strength.

## Technical Features:

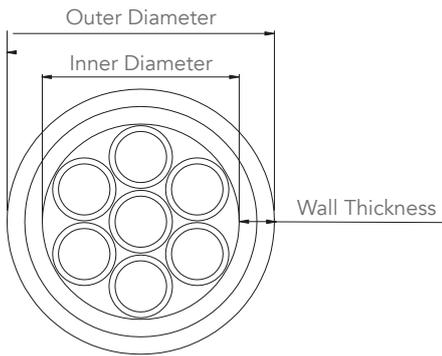
- Micro ducts and outer jacket made from HDPE, inner jacket from PP
- High tensile force of up to 19.000N
- Very high pulling resistance
- High scratch resistance during the pulling process Pressure resistance to 15 bar
- Stiff construction to prevent undulations of MicroDucts offering longer blowing distances

## Accessories

Selected Accessories highlighted here, see complete overview on pages 34 - 35

- 1 Microduct Reducer
- 2 DuraFit Endstops
- 3 DuraFit Connector
- 4 DuraGasBlock Connector





## DuraDrill Configurations

Configuration + Size (OD/ID mm)	Inner Diameter (mm)	Outer Diameter (mm)	Wall Thickness (mm)	Length (m)	Drum Dimensions (cm) (height x core x width)
3x12/8	25,9	31,9	3	1000	190x90x100
4x20/15	48,3	54,3	3	850	240x140x100
7x12/8	36	42	3	1000	240x140x100
7x12/8	36	42	3	1600	240x120x100
7x12/8	36	42	3	2000	240x120x100
12x10/6	40,6	46,6	3	1000	240x140x100
12x12/8	49	55	3	850	240x140x100
4x14/10	33,8	39,8	3	1500	240x140x100
7x14/10	42	48	3	1000	240x140x100

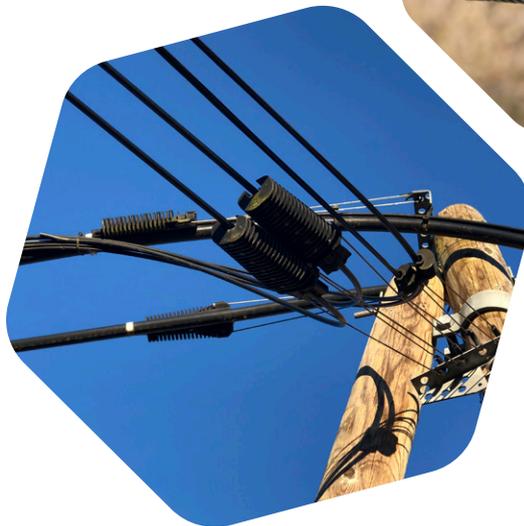
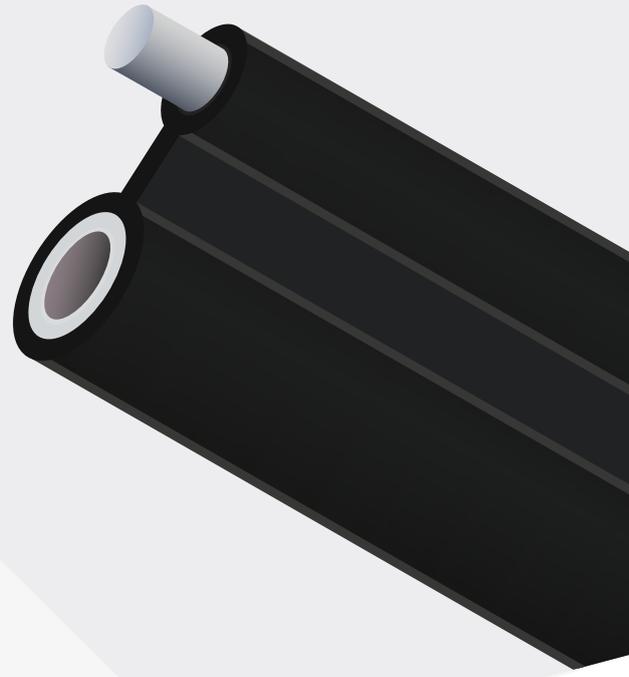


# DuraAir

The standard Figure-8 construction of our new aerial drop product is lightweight with minimal visual impact and is easy to install with low string tension. DuraAir Figure-8 can withstands extreme overloads from snow, wind and ice. Using Push-Fit connectors it easily becomes part of your MicroDuct FTTH network with quick one-step cable blowing operation.

## Technical Features:

- Lightweight future proof solution
- Metal free, figure-8 construction
- High UV resistance  
(at least 15 years guaranteed)
- Tested and Certified – vibration test, tension test
- Complies with EN 60794
- Span: recommended max 50m
- Sag: 1% of span at 15 or 20 °C. e.g. for an average span of 50m, the sag will be 0.5m
- Tension for 50m span & 0.5m sag = 30 N



## Tension Calculation

$$\text{Tension} = \frac{(\text{Weight}_D + \text{Weight}_C) \times (\text{Span})^2}{8 \times \text{Sag}}$$

Dura-Air Figure-8 5/3,5 mm	Temperature at time of installation °C	Sag	Installation force [N] at a span length in meters of				
			30 m	40 m	50 m	60 m	70 m
	20	1 %	176 N	235 N	293 N	352 N	410 N



# PRODUCT CUSTOMIZATION

Our standard configurations/variations are based on our standard colours, stripes and marking. Other configurations may be available on request.

In addition to products manufactured from HDPE, we offer fire-rated LSHF materials and materials resistant to damage from rodents. Duct inner layers can be ribbed or smooth.

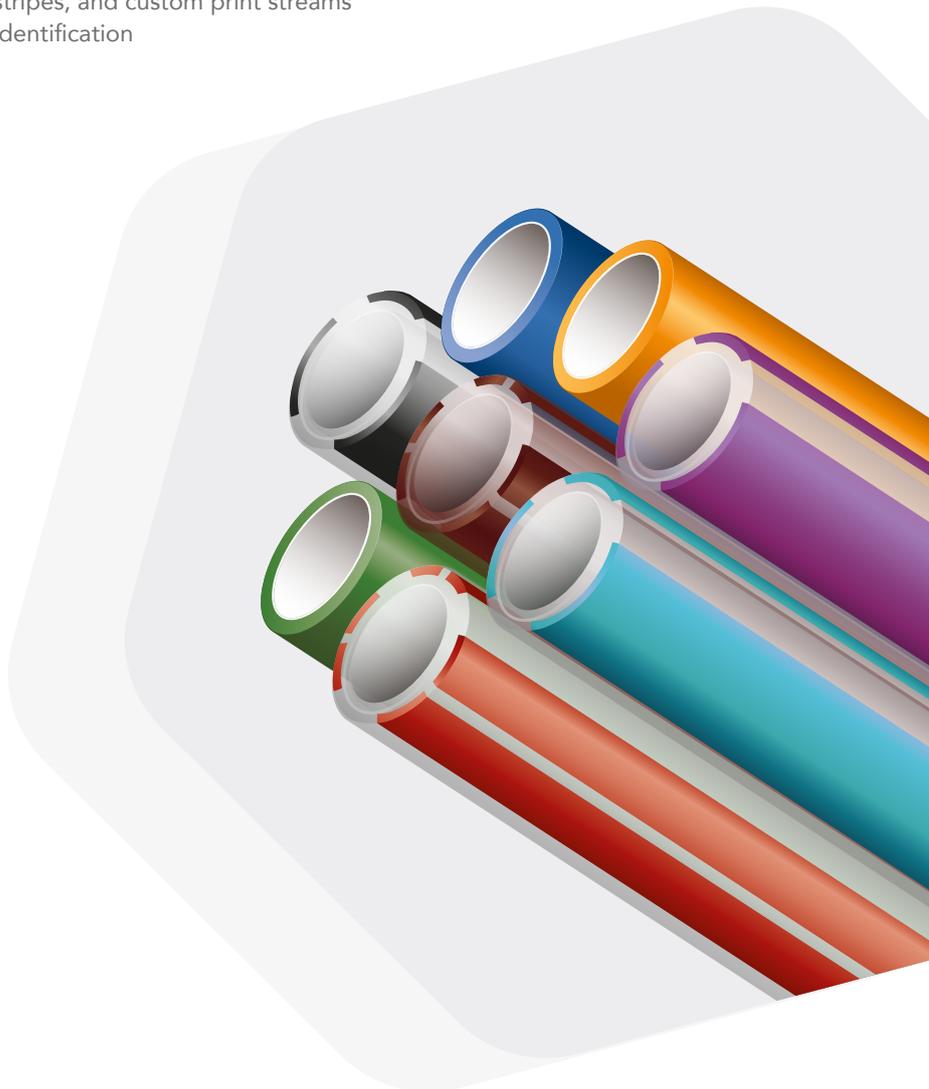
## Technical Features:

As standard all Dura-Line products are:

- Made from high quality virgin HDPE
- Highly Pressure resistance: suitable for air or water jetting
- Manufactured with a low friction coefficient (<0.1) for maximum cable installation distance
- Optional ribbed inner design to improve cable jetting performance
- UV stabilized
- Designed for a minimum 25 year life

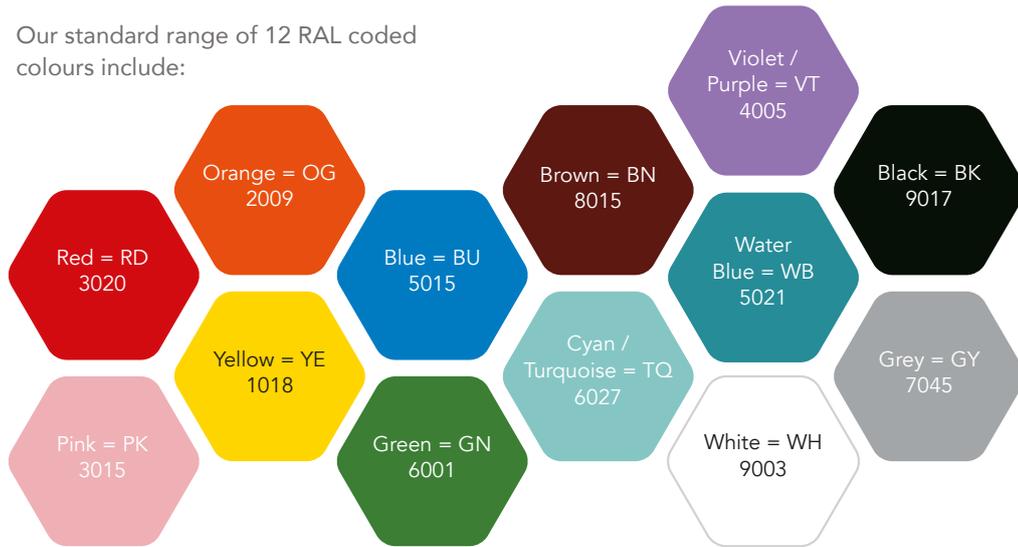
## Custom Product Markings

All Dura-Line conduits and MicroDucts can be manufactured in a variety of colours, stripes, and custom print streams for easy identification



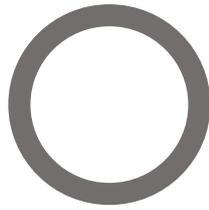
## Color Coding

Our standard range of 12 RAL coded colours include:

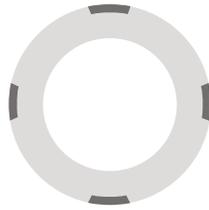


## Color Combination Options

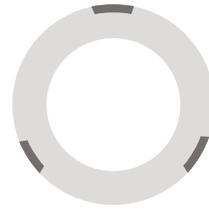
Various configurations of colour coding are available: fully opaque or colourless with stripes.



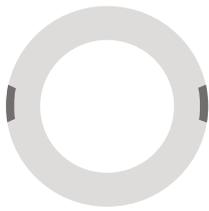
Opaque



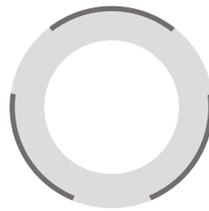
Colourless  
+ 4 thin stripes



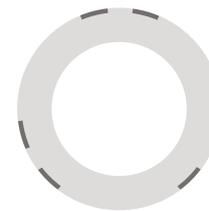
Colourless  
+ 3 thin stripes



Colourless  
+ 2 thin stripes



Colourless  
+ 3 wide stripes



Colourless  
+ 6 thin stripes

## Marking

Standard marking is as follows and can be customised on request:

### For MicroDucts:

DURA-LINE CT DuraMicro DB/DI OD/IDmm SILICORE MM/YYYY LOT No 0000m >I<

### For Bundled Products:

Metrication | Manufacturer | Batchnumber | Type of bundle | PE-HD |  
Production date | Machine -No. |

# PACKAGING CONFIGURATIONS



Plywood Drums

Wooden Drums

Plastic Drums

Big Wooden Drums

Small Wooden Drum

## Packaging

We offer a range of packaging options for efficient transport and ease of use including plywood drum (HPD drums) and wooden drums (HWD drums).

Our standard drum dimensions are listed below:

Drum Dimensions (cm) (height x width x core)	Weight of Drum (kg)	Drums per Truckload
60x40x47	6	352
120x46x35	21	110
120x52x50	82	88
150x67x60	150	27
190x90x100	212	14
225x90x100	300	12
240x120x100	330	10
240x140x100	385	10

\* Other dimensions may be available on request.

## Storing and transport instructions

Drums must be stored safely as improper storage can cause damage to drums and their contents.

- Manipulation of drums (e.g. rollover) must be done with appropriate equipment
- Always keep the duct protected against UV radiation.
- Duct ends must be sealed to protect against ingress of moisture and debris.
- Wooden drums can be stored outside subject to product data sheet instructions (including temperature range and storage conditions)
- Standard temperature range for HDPE products ranges – 40 °C to +60 °C
- Plywood drums must be stored indoors

Drums should only be transported with approved vehicles. All drums must be securely fastened during transportation to prevent injury or damage to the product. Wedges, supports and tie-downs can be used to secure drums, fastening sideways from the highest point. Ensure loading follows proper weight and balance for the vehicle.

Small  
Plywood  
Drums

# CORE RANGE ACCESSORIES

## MicroDuct Connection & Termination

### 1 DuraFit Connector

Simple, reliable connection between MicroDucts. Transparent for easy joint inspection. From Ø 4 to 20mm. With locking clips or locking protection cover.

### 2 DuraFit Reducer

Transparent for simple joint inspection, available from, from Ø 3 to 16mm

### 3 DuraFit Endstop

From Ø 5 to 20mm

### 4 DuraEnd Cap

Soft, temporary sealing for microduct and microduct bundles



## Cable Sealing & MicroDuct

### 1 DuraGasBlock Connector/Reducer

Gas and water tight, available from Ø 5 to 16mm, color coded for easy identification

### 2 DuraGasblock Terminator

Splittable for easy install. Available from Ø 4 to 20mm

### 3 WGT – Water/Gas Termination - full

(Alu body, Ø 5 to 20mm)

### 4 WGT – Water/Gas Termination - sliced

(Alu body, Ø 5 to 20mm)



## MicroDuct Bundle Sealing & Distribution

### 1 DuraPack MicroDuct seal

Splittable, creates an air tight, water tight connection between DuraPack and MicroDucts

### 2 DuraPack MicroDuct seal temp

For easy sealing from DuraPack to MicroDucts

### 3 DuraMulti MicroDuct seal

Splittable, creates air and water tight connection between DuraMulti and MicroDucts



## Wall Entry Sealing

### 1 DuraWallEntry Above Ground

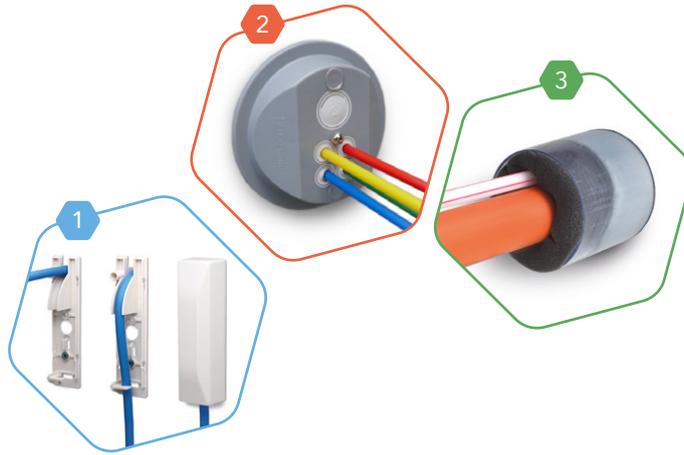
Simplifies building-entry with a secured bend radius

### 2 DuraWallEntry Below Ground

For below ground building-entry

### 3 DuraWall-Duct Seal

To seal between a duct and a subduct solution with expanding foam



## Localization

### 1 DuraWarning Tape

Buried over ducts to prevent accidental damage

### 2 DuraBall Marker

Locates buried networks

### 3 DuraBall Locator

Locates DuraBall markers



## Others

### 1 DuraJet Lube

Water-based lubricant, improves jetting performance

### 2 DuraToolKit

Set of common tools for FTTH networks

### 3 DuraSpool Box

Simple solution for managing extra lengths of cable



## DuraOpto & Termination

### 1 DuraOpto Connectors & Reducers

Screw on design. Available from Ø 20 to 63mm.

### 2 DuraOpto End Stop

Screw on design. Available from Ø 20 to 63mm.

### 3 DuraPDC

Splittable, creates gas and water tight connection in a protected area



**Manufacturing locations:****Dura-Line Czech Republic**

DURA-LINE CT, s.r.o.,  
U Písáku 682,  
763 62 Tlumačov

**Dura-Line France**

ZI de Motz-Serrieres  
73310 MOTZ

**Dura-Line Poland**

Kościńskiego 23,  
96-502 Sochaczew

**Sales Offices :****Dura-Line Germany**

Dura-Line Germany GmbH  
Lilienthalstraße 30  
49716 Meppen

**Dura-Line Norway AS**

Karihaugveien 89  
N-1086 Oslo

**Dura-Line Sweden**

Kjulamon 6, 635 06 Eskilstuna

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