



## HDPE PIPES FOR FIBER OPTIC & CABLE PROTECTION

- Ducts and Microducts



# WHO ARE WE?

**Hebeish Group** is the mother company of 4 subsidiary companies, completing each other to provide our customer with full HDPE piping solutions. Our aim is to deliver the highest quality in order to ensure the best outcome for our customers.

We manufacture comprehensive plastic piping & hoses solutions for the building, civil, mining, and industrial market. Our products range from **high density polyethylene (HDPE)** piping systems for **Pressure, Non pressure, Cable Protection, and Micro Ducts** to polyvinyl chloride (**PVC**) hoses. We aim to provide our customers with a full fledged service from the pipes to all the welding and technical support that might be needed for them to achieve the best results for their projects.

We produce our own HDPE pipes, segmented fittings and manholes. We complement our range by being the official distributors for **Widos** Germany HDPE pipe welding machines, **NTG** HDPE PE 100 injection fittings, **Akatherm** Netherlands special drainage fittings & **GAO** China BMC manhole covers.

Our manufacturing unit of PE pipes and accessories have been accredited by **The National Organization for Potable and Sanitary Drainage of Egypt**.

Besides our manufacturing and importation departments, we provide technical and welding support for the actual execution of the projects.

All our products are manufactured according to international standards using extrusion technology, and we ensure that all our production goes through stringent quality assurance systems and extensive testing to ensure that the highest quality standards are met.

**Our Vision** is to raise the quality of potable, sewage networks and waste water treatments in Egypt and North Africa, hence improve living conditions.

**Our Mission** is to achieve our vision by providing the market with the most reliable and efficient products that guarantee long life and leakage free network, as well as maintaining satisfied and loyal clients.

We are fully equipped to undertake any project involving HDPE pipes with our comprehensive piping system and experience. Partnering with Hebeish Group will ensure the delivery of best results for your projects while experiencing the highest level of client satisfaction.



## HDPE DUCTS & MICRO DUCTS

With the fast growing demands of network today, the **High Density Polyethylene Ducts** and **Microducts** allow for a more economic and advantageous method for optic fiber installation, through better utilization of space within existing ducts.

HDPE Duct and Microduct pipes have a **silicon inner surface** in order to **reduce friction** as optic fibers are being blown into them.

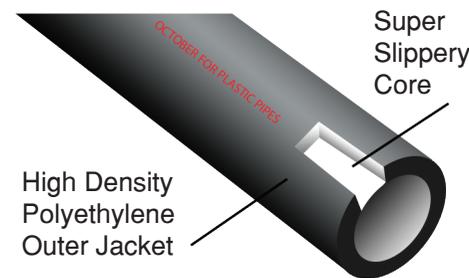
Microducts are typically small-diameter, flexible, or semi-flexible, while ducts are larger in diameter. They are designed to provide clean, continuous, low-friction paths for placing optical cables that have relatively low pulling tension limits.

Ducts & Microducts are made of the highest quality HDPE outer layer with smooth inner layer.

All production is made according to specification of DIN 8075/8074.

## CORE VARIATIONS

The silicon smooth and ribbed material used for the inner layer ensures easy installation of cable, zero friction and no lubricants required, making the blowing of the cables a very easy process.



Silicon smooth inner layer



Silicon ribbed inner layer



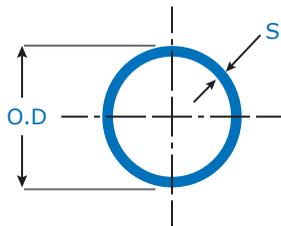


## DUCT SIZES

HDPE pipes																								
O.D	SDR 33			SDR 26			SDR 21			SDR 17			SDR 13.6			SDR 11			SDR 9			SDR 7.4		
	I.D	S	W(kg/m)	I.D	S	W(kg/m)	I.D	S	W(kg/m)	I.D	S	W(kg/m)	I.D	S	W(kg/m)									
20	---	---	---	---	---	---	---	---	---	---	---	---	16.4	1.8	0.107	16.2	1.9	0.112	15.4	2.3	0.133	14.4	2.8	0.154
25	---	---	---	---	---	---	---	---	---	21.4	1.8	0.137	21.2	1.9	0.144	20.4	2.3	0.171	19.4	2.8	0.200	18	3.5	0.240
32	---	---	---	---	---	---	---	---	---	28.2	1.9	0.187	27.2	2.4	0.232	26.2	2.9	0.272	24.8	3.6	0.327	23.2	4.4	0.386
40	---	---	---	36.4	1.8	0.227	36.2	1.9	0.239	35.2	2.4	0.295	34.0	3.0	0.356	32.6	3.7	0.430	31.0	4.5	0.509	29	5.5	0.600
50	46.4	1.8	0.287	46.0	2.0	0.314	45.2	2.4	0.374	44.0	3.0	0.453	42.6	3.7	0.549	40.8	4.6	0.666	38.8	5.6	0.788	36.2	6.9	0.936
63	59.0	2.0	0.399	58.0	2.5	0.494	57.0	3.0	0.580	55.4	3.8	0.721	53.6	4.7	0.873	51.4	5.8	1.050	48.8	7.1	1.260	45.8	8.6	1.47

**O.D: Outside Diameter      I.D: Inner Diameter      S: Min Wall Thickness**

## STANDARD DIMENSION RATIO



$$SDR = \frac{O.D}{S}$$

SDR... standard dimension ratio  
 O.D ... outside diameter (mm)  
 S ... wall thickness (mm)





## MICRODUCT Bundle Variations

Product	1 - Way			2 - Way			4 - Way			7 - Way			24 - Way	
<b>Drawing</b>														
<b>Outer Diameter</b>	5mm up to 63mm			5mm up to 20mm			5mm up to 20mm			5mm up to 20mm			5mm up to 7mm	
<b>Standard Sizes (OD/ID)</b>	5/3.5	12/8	16/12	5/3.5	12/8	16/12	5/3.5	12/8	16/12	5/3.5	12/8	16/12	5/3.5	7/3.5
	7/3.5	12/10	16/14	7/3.5	12/10	16/14	7/3.5	12/10	16/14	7/3.5	12/10	16/14		
	10/6	14/10	20/16	10/6	14/10	20/16	10/6	14/10	20/16	10/6	14/10	20/16		
	10/8	14/12		10/8	14/12		10/8	14/12		10/8	14/12			

\* Special sizes can be made according to customers need





## COLOR CODING

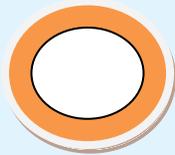
Product may be supplied in a wide range of colors.

The color[s] of the MicroDuct is assigned according to the EIA 598 Standard or as per customer's request.

TIA 598-C Standard Colors													
Fiber/Unit Number	1	2	3	4	5	6	7	8	9	10	11	12	13 and higher
Fiber Color	Blue	Orange	Green	Brown	Slate	White	Red	Black	Yellow	Violet	Rose	Aqua	The color code is repeated, black stripe or dash is added, according to the ANSI/TIA/EIA-598-C specifications

## APPLICATIONS

### Direct Bury (DB)



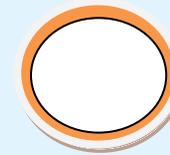
#### Direct Bury Sizes for Microducts

OD (mm)	ID (mm)
7	3.5
10	6
12	8
14	10
16	12
20	16

Direct Buried products are generally thick-walled and of heavier construction.

Their thick sheath serves as a strong and protective external surface, enabling them to endure crush loads, thus allowing for their direct laying into the ground.

### Direct Install (DI)



#### Direct Install Sizes for Microducts

OD (mm)	ID (mm)
5	3.5
10	8
12	10
14	12
16	14

Direct Install products are thin-walled and of lighter construction.

Ducts require installation into another outer protective duct to avoid direct exposure and damage of ducts.



## SUMMARY

OD/ID	5/3.5	7/3.5	10/6	10/8	12/8	12/10	14/10	14/12	16/12	16/14	20/16
<b>Physical and Mechanics Specifications</b>											
Outer Diameter	5mm ± 0.1mm	7mm ± 0.1mm	10mm ± 0.1mm	10mm ± 0.1mm	12mm ± 0.1mm	12mm ± 0.1mm	14mm ± 0.1mm	14mm ± 0.1mm	16mm ± 0.1mm	16mm ± 0.1mm	20mm ± 0.3mm
Thickness	0.75mm±0.2mm	1.75mm±0.2mm	2mm±0.2mm	1mm±0.2mm	2mm±0.2mm	1mm±0.2mm	2mm±0.2mm	1mm±0.2mm	2mm±0.2mm	1mm±0.2mm	2mm±0.3mm
Max Blowing Pressure(bar)	12	16	16	10	16	10	16	10	16	10	10
Material	HDPE ( High Density Polyethylene )										
Color	Color compliant to the <b>EIA 598</b> Standard or as per customer's request										
Internal Surface	Smooth Silicon inner layer										
<b>Installation Method (Direct Bury or Direct Install)</b>											
Application	DI	DB	DB	DI	DB	DI	DB	DI	DB	DI	DB
<b>Marking</b>											
Data	Manufacturer, Product Type, Product Size (OD/ID), Work Order Number, Date (Month, Year)										
<b>Comments</b>											
* Ovality less than 5%					* Maximum recommended wire outer diameter (OD) should be <b>70%</b> of internal diameter (ID)						

## PACKAGING

- Ducts are delivered in coils of 100 - 50 meters
- Microducts are delivered on a wooden drum





## ACCESSORIES

Type	Connector	End Cap	Reducer
<b>Material</b>			
1 = body		Polyamide	
2 = seal		NBR	
3 = washer		Polyacetal	
4 = collect		Polyacetal	
<b>Working Pressure</b>	20 bar using for blowing system		
<b>Working Temperature</b>	- 20oC - 50+oC		
<b>Fluid</b>	Compressed air with blowing system		
<b>Microduct to connect</b>	Polyethylene HDPE		
<b>Microduct Outer diameters</b>	3, 4, 5, 7, 8, 8.5, 10, 12, 12.7, 14, 15, 16, 18mm		
<b>Estimated life</b>	25 years		
<b>Standards</b>	CEI EN 50411-2-8 Rohs CEI EN 61386-24		
<b>Patent</b>	Connectors patent		
<b>Protection class</b>	IP68		



Microduct accessories are manufactured by **Camozzi, Italy** and distributed by October for Plastic Pipes, a subsidiary of Hebeish Group.





## INTERNAL QUALITY CONTROL

Materials Test (per batch)	Product Mechanical Tests (per work order)	Dimension and Appearance Check (per coil)
<ul style="list-style-type: none"><li>Melt flow rate</li><li>Density</li></ul>	<ul style="list-style-type: none"><li>Tensile strenght</li><li>Elongation</li><li>Crush test</li><li>Pressure test</li><li>Ball pass test</li><li>Kink test</li></ul>	<ul style="list-style-type: none"><li>Weight</li><li>Coil length</li><li>Outer diameter</li><li>Thickness</li><li>Ovality</li></ul>





## FOR INQUIRIES

**Factory:** El-Prince st. Plot 142/143 First industrial area, 6th of October - Egypt  
Tel.: +202 38200882/3/4 Fax : +202 38200885 Mob.: +2 01221714913

**Head Office:** 18 Shagaret El Dor st., El Zamalek - Cairo - Egypt  
Tel.: +202 27364613/4 - +2 01223987343 Fax: +202 27364615 - +202 27355774

**Website:**[www.hebeishgroup.com](http://www.hebeishgroup.com)  
**E-Mail:**[info@hebeishgroup.com](mailto:info@hebeishgroup.com)