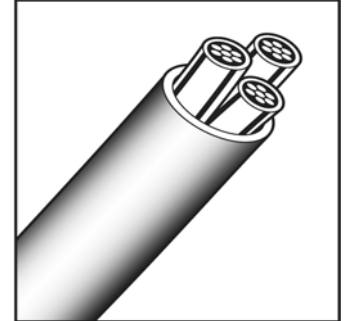


Micro-Gard™ mini-ducts are designed to be jetted or pulled into conduit and used in micro-cable installation.

## Features and Benefits

- 10 mm, 12 mm, and 16 mm sizes
- Low coefficient of friction for easy jetting or pulling of cable
- High tensile strength material allows for longer pulling distances, reducing installation costs
- Variety of stripes for identification and paralleling available - makes product easier to install
- Sequential footage markings
- Pre-installed pull line optional (10 mm ID and larger)
- High burst pressure rated material for jetting installation
- UV-formulated material for outside storage conditions
- System includes: Duct, Couplings, Terminations, Pulling Eyes, Pulling Harness and Cutters



## Specifications

Resin properties shall meet or exceed the values listed below for high density polyethylene (HDPE):

Description	ASTM Test method	Typical Values HDPE	
		English Units	SI Units
Density	D4883	-	0.944 g/cc
Melt Index	D1238	-	12.5 g/10 min.
Flexural Modulus	D790	120,000 psi	827 Mpa
Tensile Strength at yield (2 in/min)	D638	3300 psi	22.8 Mpa
Tensile Strength at break (2 in/min)	D638	4500 psi	31.0 Mpa
Environmental Stress Crack Resistance (Condition C)	D1693	>2000 hrs	>2000 hrs
Brittleness Temperature	D746	<-180° F	<-118° C

## Mini-Duct Dimensions

Nominal Size O.D. x I.D.		Outside Diameter Tolerance		Wall Thickness & Tolerance		Inside Diameter Minimum		Standard Weight
mm	inch	+/- mm	+/- inch	mm	+/- inch	mm	inch	lbs / 100 Ft
10 / 8	0.394 x 0.315	0.1	0.004	1 +0/-0.1	0.039 +0/-0.004	7.9	0.312	1.77
12 / 10	0.472 x 0.394	0.1	0.004	1 +0/-0.1	0.039 +0/-0.004	9.9	0.390	2.08
16 / 12	0.630 x 0.472	0.1	0.004	2 +0/-0.1	0.078 +0/-0.004	11.9	0.470	5.59

## Mini-Duct Performance

Nominal Size O.D. x I.D.		Bend Radius Minimum		Safe Tensile Pull Maximum		Sustained Pressure Maximum		Burst Pressure Minimum		Crush Strength ≤ 4% O.D.		Sliding Coefficient of Friction
mm	inch	mm	inch	lbs	Newtons	psi	BAR	psi	BAR	lbs	kg	
10 / 8	0.394 x 0.315	200	7.88	128	569	316	22	700	48	200	90	≤ 0.10
12 / 10	0.472 x 0.394	240	9.45	195	867	388	27	900	62	300	136	
16 / 12	0.630 x 0.472	320	12.60	371	1650	450	31	1000	68.9	500	226	

## Dimension and Performance Notes:

10 / 8 mm size recommended for jetting.

12 / 10 mm size recommended for jetting or pulling.



### Maximum Number of Mini-Ducts per Conduit & Wall

#### SDR 13.5

Conduit Size	16 mm	12 mm	10 mm
3/4"	0	1	2
1"	1	2	4
1 1/4"	2	4	6
1 1/2"	3	5	8
2"	5	9	13

#### SDR 11

Conduit Size	16 mm	12 mm	10 mm
3/4"	0	1	2
1"	1	2	3
1 1/4"	2	4	5
1 1/2"	3	5	7
2"	4	8	11

#### Schedule 40

Conduit Size	16 mm	12 mm	10 mm
3/4"	0	1	2
1"	1	2	3
1 1/4"	2	4	6
1 1/2"	3	5	8
2"	5	9	13

#### Schedule 80

Conduit Size	16 mm	12 mm	10 mm
3/4"	0	1	1
1"	1	1	2
1 1/4"	2	3	5
1 1/2"	2	4	7
2"	4	8	12

### Micro-Gard™ Part Number Configuration

Product (Position 1)	Size (Position 2)	Type (Position 3)	Wall (Position 4)	Options (Position 5)	*Splits (Position 6)	Color (Position 7)	**Stripes (Position 8)	Pull Line (Position 9)	Length (Position 10)
M = Micro-Gard	51 = 10/8 mm 54 = 12/10 mm 58 = 16/12 mm	C = Smooth / Smooth	3 = Standard	D = Pre-Lubricated	1 = 1 Duct 5 = 2 Ducts 6 = 3 Ducts 7 = 4 Ducts 8 = 5 Ducts	A = Black	NN = None 3B = Blue 3C = Brown 3D = Buff  3E = Gray 3F = Green 3G = Lilac 3J = Orange 3K = Red 3M = White 3N = Yellow	A = Empty  Z = ***600 lb. Polyester Woven Tape	5000 = 5000 Ft

\* Paralleled

\*\*Stripes on Black only.

\*\*\*10 mm ID and larger

### Packaging Configuration

<b>Single Duct:</b>	One size of mini-duct on a single reel.
<b>Parallel Duct:</b>	Same size mini-duct, in a mix of 2 to 5 duct configurations, on a single reel.
	<i>Note: To calculate parallel-duct footage, deduct 3% per duct from the single-duct footage.</i>

Micro-Gard mini-ducts are shipped on disposable wooden reels:

Nominal Size (mm)	Reel Size: 35" Flange x 32" Outer Width				
	Part Number	Description	Single Duct (ft)	Single Duct (meter)	Total Weight (lbs)
10 / 8	M51C3D1A3J13000	10/8 MM MICRO PE S/S BLK 3 ORG PL	13,000	3,962	285
12 / 10	M54C3D1A3J9000	12/10 MM MICRO PE S/S BLK 3 ORG PL	9,000	2,743	242
16 / 12	M58C3D1A3J5000	16/12 MM MICRO PE S/S BLK 3 ORG PL	5000	1,524	335



Micro-Gard push-on couplings and end caps allow each end of Micro-Gard to be easily pushed into place. No tools required. Push-on couplings and end caps can be used multiple times while maintaining original performance.

### Couplings

Part No.	Description	Std Pkg Qty	Wt. Ea. (lb)
MPCC10	10 mm OD Push-On Coupling	5	0.12
MPCC12	12 mm OD Push-On Coupling	5	0.15
MPCC16	16 mm OD Push-On Coupling	5	0.25



### End Caps

Part No.	Description	Std Pkg Qty	Wt. Ea. (lb)
MPEC10	10 mm OD Push-On End Cap	5	0.065
MPEC12	12 mm OD Push-On End Cap	5	0.090
MPEC16	16 mm OD Push-On End Cap	5	0.15



### Plug Caps (Not for pressure seal)

Part No.	Description	Conduit Application	Std Pkg Qty	Wt. Ea. (lb)
MPPC8	8 mm OD Plug Cap	Use with 10 mm OD conduit	5	0.040
MPPC10	10 mm OD Plug Cap	Use with 12 mm OD conduit	5	0.055
MPPC12	12 mm OD Plug Cap	Use with 16 mm OD conduit	5	0.090



All Micro-Gard™ Couplings and End Caps meet or exceed the following performance specifications:

Conduit Size	Pull-Out		Sustained Pressure		Quick Burst	
	Lb	Kg	PSI	BAR	PSI	BAR
10 / 8	146	66	125	8.6	175	12
12 / 10	139	63	125	8.6	175	12
16 / 12	175	79	125	8.6	175	12

## Cutters & Pulling Devices

### Duct Cutters -

- Nylon handles and high grade steel blade allow single or multiple cuts with simple squeeze and rotate method for 10 - 16 mm sizes.
- All fittings are designed to reduce risk of restriction at coupling or termination point.

Part No.	Description	Std Ctn Qty	Std Ctn Wt (lb)
CC120B	Duct Cutter 10 to 16 mm diameter	10	3.51 lb



**Multiple Micro-Gard Pulling Harness:** Each 2-Duct segment is detachable.

Part No.	Description	Std Ctn Qty	Std Ctn Wt (lb)
MAPH6	2 to 6-way Adjustable Pulling Harness	1	0.27 lb



### Multiple Micro-Gard Pulling Eye

Part No.	Description	Std Ctn Qty.	Std Ctn Wt (lb.s)
MAPE1012	Universal Pulling Eye	1	0.13 lb

