

Fire Retardant (FR) , Low Smoke, Low Halogen DIRECT BURIED MICRO-DUCT CONNECTORS

Product Technical sheet

PATENTED

ABOUT

- (a) Plas-fit Direct Buried connectors are used for the connection of micro-ducts for fiber-optic cables in the telecommunications industry with the following benefits:
- Designed for Direct Buried installation in harsh environments without need for any protective sheathing.
 - Fast and easy installation without need for any tooling for assembly or removal.
 - Fire Retardant: The Direct Buried FR fittings are tested and qualified to withstand fire resistance according to Glow wire test 750°C according to **UNE-EN 61386-1:2008+ERR:2010** - Conduit systems for cable management.
 - Low Smoke: The Direct Buried FR fittings are tested and qualified for Low Smoke by requirements of **BS-EN 61034-2:2005+A1:2013** - Smoke opacity.
 - Low Halogen: The Direct Buried FR fittings are tested and qualified for Low Halogen by requirements of **UNE-EN 60754-1:2014** – Determination of Halogen Acids.
 - Can be dismantled for re-use.
- (b) The connectors are resistant to pressures used in the industry for blowing cables through guide tubes (micro-ducts) and provide protection from dirt and water.
- (c) The connectors are of a push-fit design for quick and easy installation and disassembly*.
- (d) Minimal interference to cable passage to due unique design of the internal structure of the connector.
- (d) The connectors comply with the relevant sections of **EN 50411-2-8:2009** as described in the technical specification section.





AVAILABLE PRODUCTS

Cat No	Size
40006M3006-FR	6mm x 6mm Direct Buried FR Connector
40007M3007-FR	7mm x 7mm Direct Buried FR Connector
40008M3008-FR	8mm x 8mm Direct Buried FR Connector
40010M3010-FR	10mm x 10mm Direct Buried FR Connector
40012M3012-FR	12mm x 12mm Direct Buried FR Connector
40014M3014-FR	14mm x 14mm Direct Buried FR Connector
40016M3016-FR	16mm x 16mm Direct Buried FR Connector
40020M3020-FR	20mm x 20mm Direct Buried FR Connector



Cat No	Size
40006S3000-FR	6mm Direct Buried FR End-Stop
40007S3000-FR	7mm Direct Buried FR End-Stop
40008S3000-FR	8mm Direct Buried FR End-Stop
40010S3000-FR	10mm Direct Buried FR End-Stop
40012S3000-FR	12mm Direct Buried FR End-Stop
40014S3000-FR	14mm Direct Buried FR End-Stop
40016S3000-FR	16mm Direct Buried FR End-Stop
40020S3000-FR	20mm Direct Buried FR End-Stop



Cat No	Size (mm)	Description
40010D3007FR	10x7	Direct Buried Reducer FR
40010D3008FR	10x8	Direct Buried Reducer FR
40012D3007FR	12x7	Direct Buried Reducer FR
40012D3008FR	12x8	Direct Buried Reducer FR
40012D3010FR	12x10	Direct Buried Reducer FR
40014D3010FR	14x10	Direct Buried Reducer FR
40014D3012FR	14x12	Direct Buried Reducer FR
40016D3012FR	16x12	Direct Buried Reducer FR
40016D3014FR	16x14	Direct Buried Reducer FR



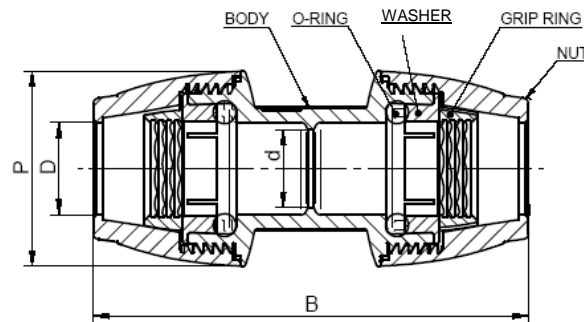
* Note: if pipe and connectors has been under pressure, the grip-ring needs to be changed before re-using for other pipe.

The following data is relevant for both Straight-Connectors and End-Stops:



MATERIALS

#	Part	Raw Material	color
1	BODY	FR High Impact Polypropylene	White
2	WASHER	FR Polypropylene	White
3	NUT	FR Polypropylene	White
4	GRIP RING	Polyamide	Depending on the size
5	O- RING	Silicone	Brown



- All parts are made of plastic with maximum endurance for water and chemicals, and wide range of storage, installation and usage temperatures and humidity.
- Seal and internal parts are protected from dirt by the internal structure of the connector.
- The use of 100% plastic durable materials and unique structure of the connector allows using it in Direct Buried installations without need for any additional protection.
- Patented grip ring.

Duct Allowed Dimensions

DN	d min	d max	Ovality
7	6.9	7.1	<5%
8	7.9	8.1	<5%
10	9.9	10.2	<5%
12	11.9	12.2	<5%
14	13.9	14.2	<5%
16	15.9	16.2	<5%
20	19.9	20.3	<5%

TECHNICAL SPECIFICATIONS

Fire Aspects

- Fire Retardant: The Direct Buried FR fittings are tested and qualified to withstand fire resistance according to Glow wire test 750°C according to **UNE-EN 61386-1:2008+ERR:2010** - Conduit systems for cable management.
- Low Smoke: The Direct Buried FR fittings are tested and qualified for Low Smoke by requirements of **BS-EN 61034-2:2005+A1:2013** - Smoke opacity.
- Low Halogen: The Direct Buried FR fittings are tested and qualified for Low Halogen by requirements of **UNE-EN 60754-1:2014** – Determination of Halogen Acids.

Temperatures

- Minimum working temperature: - 15°C
- Maximum working temperature: + 45°C

Pressure

The connectors withstand successfully air pressure test according to the below testing protocol:

- The tested connector is connected between 2 standard ducts and put under a pressure of 15 bar for 30 min and afterwards sealed and disconnected from the compressor.
- The test is considered as successful if after a duration of 1 hour the pressure dropped less than 1,5 bar.
- After this test, the connector is removed without connector damage.

Detailed below for all temperatures in the working range:

- Continuous working pressure: 16bar
- Peak working pressure: 20bar

Burst pressure

- The connectors withstand Burst Pressure Test (Safety) of at least 25ber.
- Tested at -10degC and 40degC according to **EN50411-2-8:2009** Annex. C

Leak-tightness under external pressure

All connectors withstand 1.35 bar external water pressure.

Insertion Force

Microduct Retention

The connectors resist pull out forces as required by **EN 50411-2-8:2009** between the connector and the microduct as follows:

Test	Conditions	7mm	8mm	10mm	12mm	14mm	16mm	20mm
*Continuous pull-out:	(1h, 23°C)	>300N	>350N	>450N	>650N	>900N	>950N	>1000N
Violent pull-out: (jerk)	(< 0.3 sec, 23°C)	>800N	>850N	>950N	>1200N	>1500N	>1800N	>2000N

* Note (1): Results on micro-ducts manufactured from PE100 material. The quality of the duct material will affect the pull -out test results due to "necking".

** Note (2): if pipe and connectors has been under pressure, the grip-ring needs to be changed by recycling before re-using for other pipe.

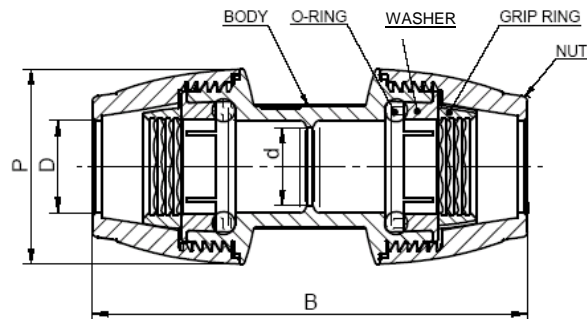
Impact

The connectors withstand impact force as required by **EN 50411-2-8:2009**, according to the following procedure:

- Connect 2 ducts using a straight connector and end-stop at one end.
- Bring the set to required temperature (done in (-15degC) and (+45degC) for 4 hours.
- Drop a weight of 1.0kg with radius 12.5mm on the center of the fitting from relevant height (1 Joule).
- Perform pressure test (0.4 Bar for 15 Minutes) – Passed.

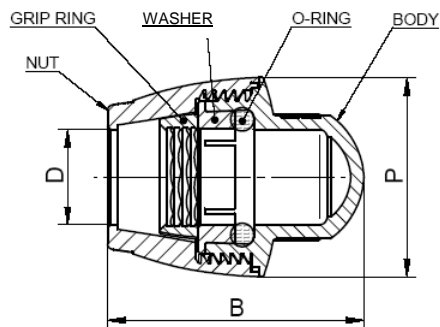
DIMENSIONS

Straight Connector



Part no.	DN	D	d	P	B
40007M3007-FR	7	7.4	6.0	19.0	48.0
40008M3008-FR	8	8.3	7.0	20.4	53.0
40010M3010-FR	10	10.4	8.5	24.0	58.0
40012M3012-FR	12	12.4	10.0	26.0	61.8
40014M3014-FR	14	14.3	12.0	30.0	67.0
40016M3016-FR	16	16.4	14.0	33.5	72.0
40020M3020-FR	20	20.4	18.0	37.5	87.0

End Stop



Part no.	DN	D	P	B
40007S3000-FR	7	7.4	19.0	27.7
40008S3000-FR	8	8.3	20.4	29.9
40010S3000-FR	10	10.4	35.0	35.0
40012S3000-FR	12	12.4	26.0	37.4
40014S3000-FR	14	14.3	30.0	38.0
40016S3000-FR	16	16.4	33.5	42.2
40020S3000-FR	20	20.4	37.5	51.0