

# Non-Metallic Systems

## PP Medium Weight Conduit



### Technical Characteristics

Conforms to BSI Kitemark KM-35161  
Low voltage directive

Approvals and Standards 



Degree of mechanical protection High flexibility, medium fatigue life

Degree of protection 
 IP40 - N/A  
 IP65 - N/A  
 IP66 - Polypropylene Type PP  
 IP67 - N/A  
 IP68 - N/A  
 IP69k - N/A

UV protection Medium

Finish Black (BL)

Application Indoors / Outdoors, Acid environments

Normal operating temperature range	Application	Min Temp	Max Temp
	Static	- 20°C	+90°C
	Dynamic	- 5°C	+105°C

For use with - Fitting range [Adaptalok PPA](#) fittings

Fire performance	Test Standard	Performance Rating
	Halogen Free	Yes
	Phosphorus Free	Yes
	Sulphur Free	Yes
	ISO 4859	18%
	UL94	HB

Testing data Click or See pages [3](#) & [4](#)

Type of material Polypropylene



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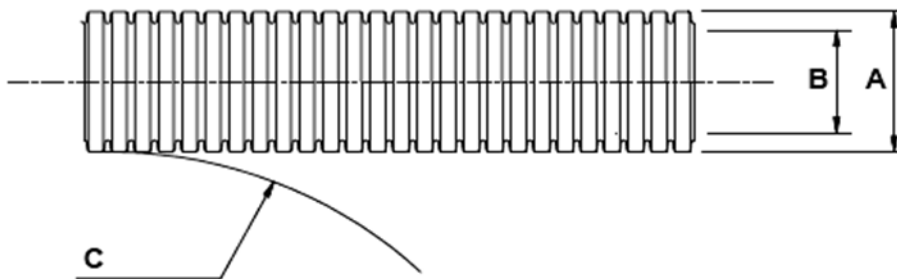
## PP Medium Weight Conduit



### Technical & Dimensional Data

Part No.	Conduit Size			Dimensions				Average Weight (KG/100m)
	Nominal Conduit Size	NW Conduit Size	Conduit Pitch	(A) Outside Diameter	(B) Inside Diameter	(C) Min. Bend Radius	Reel Length (m)	
PPFM13	13mm	10	Fine	13.0mm	9.8mm	25mm	50	2.0
PPFM16	16mm	13	Fine	15.8mm	12.1mm	35mm	50	3.1
PPFM21	21mm	17	Fine	21.2mm	16.8mm	40mm	50	4.6
PPFM28	28mm	23	Fine	28.5mm	23.1mm	60mm	50	6.5
PPFM34	34mm	29	Fine	34.5mm	29.1mm	50mm	50	8.5

To order quote part number, colour & reel length, e.g PPFM21/BL/50M



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### BS EN 61386 Classification

	Fitting	Compression	Impact	Min temp	Max temp	bending	electrical	IP solids	IP water	Corrosion	Tensile	Non-flame Propogating	Suspended load
PP	PPA	1	4	4	5	4	0	6	7	-	1	1	0

### Mechanical Properties

Test Type	Methods / Standards	Requirements	Value
Crush Strength	IEC61386-1	<25% crush >90% recovery	>125N
Tensile Strength	AFX norm T1987	Pull off of fitting minimum value	>100N
Impact Strength @ 23°C	IEC61386-1	No Cracks <20% deformation min value	>2J
Static Bend radius @-45 °C	AFX norm S1985	20mm Conduit	40mm
Dynamic Bend radius @-45 °C	IEC61386-1	5000 cycles minimum	120mm

### Thermal Properties

Test Type	Methods / Standards	Requirements	Value
Minimum Temp	IEC61386-1	Dynamic 5000 cycles	-5°C
Maximum Short Term Temp	IEC61386-1	Dynamic 3000 hours, 5000 cycles	105°C
Minimum Static Temp	-	Permanent Use (30,000) Hours	-20°C
Maximum Static Temp	-	Permanent Use (30,000) Hours	90°C
-	-	-	-

### Chemical Resistance Chart

Key:	Green Circle	Yellow Circle	Red Circle	Black Circle
Suitable :	● Astm No.1	● Diesel oil	● Methyl Bromide	● Sulphur Dioxide (Gas)
Limited Suitability :	● Astm No.2	● Diethylamine	● MEK	● Sulphuric Acid (10%)
Unsuitable :	● Astm No.3	● Ethanol	● Nitric Acid (10%)	● Sulphuric Acid (70%)
Not Tested :	● Acetic Acid (10%)	● Ether	● Nitric Acid (70%)	● Toluene
	● Acetone	● Ethylamine	● Oxalic Acid	● Transformer Oil
	● Aluminium Chloride	● Ethylene Glycol	● Ozone (Gas)	● 1, 1, 1-Trichloroethane
	● Aniline	● Ethyl Ethanoate	● Paraffin oil	● Trichloroethylene
	● Benzaldehyde	● Freon 32	● Petrol	● Turpentine
	● Benzene	● Hydrochloric Acid (10%)	● Phenol	● Vegetable Oil
	● Carbon tetrachloride	● Hydrochloric Acid (36%)	● Sea Water	● Vinyl Acetate
	● Chlorine water	● Hydrogen Peroxide (35%)	● Silver Nitrate	● Water
	● Chloroform	● Hydrogen Peroxide (87%)	● Skydrol	● White Spirit
	● Citric Acid	● Lactic Acid	● Sodium Chloride	● Zinc Chloride
	● Copper Sulphate	● Lubricating oil	● Sodium Hydroxide (10%)	
	● Cresol	● Methanol	● Sodium Hydroxide (60%)	

The information above is given as a guide only and is based on published technical data and experience. The chemical resistance of the above products is dependant on factors such as chemical exposure, concentration of the chemical and temperature. The above chemicals are valid for a temperature of 23°C. Use of the above table is at the users own discretion and risk. Those using it must satisfy themselves that their application presents no health and safety risks. The end user should assess compatibility with their application and contact Thomas & Betts for further information.

ADHERENCE TO THE CURRENT WIRING REGULATIONS BS7671 OR NEC WIRING REGULATIONS (FOR USA) IS STRONGLY ADVISED.

MINIMUM BEND RADIUS FOR FLEXING IS DEPENDANT UPON MINIMUM TEMPERATURE, BENDING FREQUENCY AND CHEMICAL ENVIRONMENT.

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### Flammability

Test Type	Method / Standard	Requirement	Result	Unit
Oxygen Index	ISO 4589	% Oxygen to support combustion >34%	18	%
Glow Wire Rating	IEC 60695	No Ignition to Extinguish with 30s	750	°C
Flammability	UL94	Vertical (V0) or Horizontal (HB)	HB	HB/V0
Flammability	IEC 61386	Vertical Burn	-	Pass/Fail
Flammability	IEC 61386	Self extinguishing <30s	-	Seconds
Ignition Rating	NF F16-101/2	Glow Wire & oxygen index	-	-





### Smoke

Test Type	Method / Standard	Requirement	Result	Unit
Fume Rating	NF F16-101/2	Smoke & Toxicity	-	-
Smoke Density	BS6853:1999	-	-	-
-	-	-	-	-

### Toxicity

Test Type	Method / Standard	Requirement	Result	Unit
Halogen Free	LUL	<0.5%	Yes	Yes/No
Phosphorus Free	LUL	<0.5%	Yes	Yes/No
Sulphur Free	LUL	<0.5%	Yes	Yes/No
-	-	-	-	-
-	-	-	-	-

### Fire Performance Overview

Property	Low Fire Hazard	Enhanced Low Fire Hazard	Super Low Fire Hazard	Inherent Low Fire Hazard
				
<b>Property</b>	LFH	EFLH	SLFH	ILFH
Oxygen Index ISO4589	32% ≥ OI ≥ 28%	OI ≥ 32%	OI ≥ 32%	Inherent Low Fire
BS6853 Smoke Density 3m³	0.02 ≤ A <sub>s</sub> ≤ 0.03	0.0005 ± A <sub>s</sub> ≤ 0.02	A <sub>s</sub> ≤ 0.005	Hazard i.e
Zero Halogen	✓	✓	✓	Type , S, SS
Zero Phosphorus	✓	✓	✓	Metallic Conduit & Fit-
Zero Sulphur	✓	✓	✓	tings
NFF16-102	I3F2	I2F2	I2F1	
EN45545-2	HL2	HL3	HL3	

### Pre Test Conditions

Duration	Standard	Temperature	Relative Humidity
168 (Hours)	EN50086/IEC61386	23 (°C)	50 (%)

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