

Non-Metallic Systems

PRTC High Specification Braided Conduit

Technical Characteristics

Conforms to	BSI Kitemark KM-35161 Low voltage directive London Underground limited & dispersed use Lloyd's Register of Shipping Type Approval NFF 16-101/2 I2, F1 Deutsche Bahn S4, SR2, ST2		
Approvals and Standards	     		
Degree of mechanical protection	High flexibility, Medium fatigue life		
Degree of protection	IP40 - N/A IP65 - N/A IP66 - Hi-Spec Type A & B IP67 - Hi-Spec Type A & B IP68 - N/A IP69k - N/A		
UV protection	Very High		
Finish	Tinned Copper Braided		
Application	Indoors / Outdoors - EMI Screen and / or abrasion resistance		
Normal operating temperature range	Application	Min Temp	Max Temp
	Static	- 40°C	+120°C
	Dynamic	- 5°C	+120 °C
For use with - Fitting range	Hi-Spec Type A & B		
Fire performance	Test Standard	Performance Rating	Self Extinguishing & Halogen Free 
	BS6853:1999	0.0261 Ao	
	NFF 16-101 /2	I2 / F1	
	TS45545-2 (ISO5659)	87 (HL3)	
	LUL	Pass <0.1%	
	UL94	V0	
Testing data	See pages 3 & 4		
Type of material	Modified Polyamide 6 (Nylon) - flame retardant - heat stabilised featuring a Tinned Copper overbraid.		
Image			

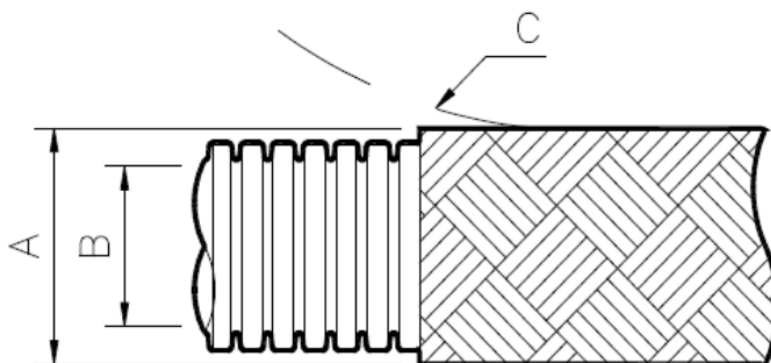
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Technical & Dimensional Data

	Conduit Size			Dimensions				
Part No.	Nominal Conduit Size	NW Conduit Size	Conduit Pitch	(A) Outside Diameter	(B) Inside Diameter	(C) Min. Bend Radius	Reel Length (m)	Average Weight (KG/100m)
TPRFSTC16	16mm	13	Fine	17.2mm	11.7mm	35mm	50	3.8
TPRCSTC21	21mm	17	Coarse	23.6mm	16.6mm	45mm	50	6.0
TPRCSTC28	28mm	23	Coarse	30.0mm	21.7mm	50mm	50	10.0
TPRCSTC34	34mm	29	Coarse	36.0mm	27.7mm	60mm	50	14.0
TPRCSTC42	42mm	36	Coarse	43.5mm	35.1mm	65mm	25	16.5
TPRCSTC54	54mm	48	Coarse	56.5mm	46.6mm	75mm	25	23.5

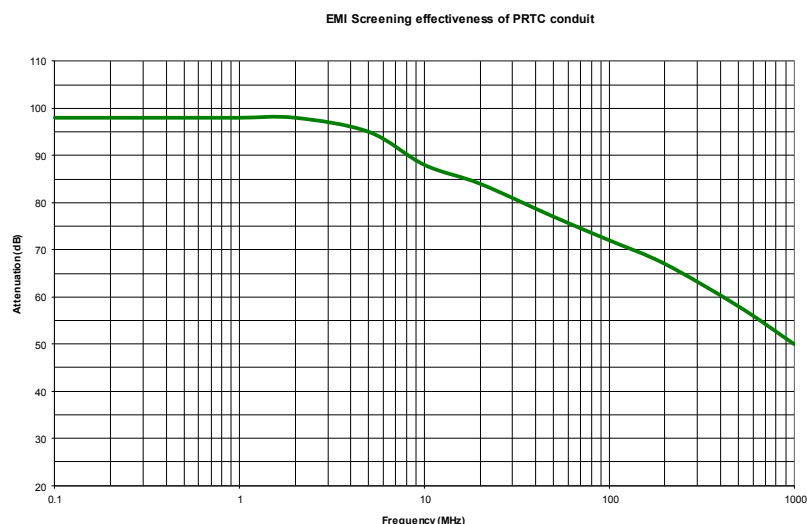
To order, quote part number & reel length, e.g TPRCSTC21/50M



The graph to the right shows the results of PKFSTC21 screened conduit, with its appropriate fittings, tested by ERA technology, to IEC60096/2:93 (radio frequency cables part 1). Tests measured attenuation in decibels (dB) over the frequency range covered by the EMC directive, 0.1 to 1000MHz.

For applications where electromagnetic interference is of particular concern, suitable conduit systems have been classified by means of symbols.

These are related in an ascending scale of performance as outlined in this explanation.



Symbol	Screen level	Explanation
	40db @ 100MHz Standard EMI Screen	Standard EMI Screen (Products featuring a Stainless Steel overbraid)
	60db @ 100MHz Enhanced EMI Screen	Enhanced EMI Screen (Products featuring a Galvanised Steel overbraid)
	75db @ 100MHz High EMI Screen	High EMI Screen (Products featuring a tinned copper overbraid)

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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 Propagating	Suspended load
TPR S	TATS	2	4	2	4	4	0	6	7	-	1	1	0

Mechanical Properties

Test Type	Methods / Standards	Requirements	Value
Crush Strength	IEC61386	<25% crush >90% recovery	>320N
Tensile Strength	IEC61386	Pull off of fitting minimum value	>100N
Impact Strength @-5°C	IEC61386	No Cracks <20% deformation min value	>6.0J
Impact Strength @23°C	IEC61386	No Cracks <20% deformation min value	>20J
Dynamic Bend radius @-5 °C	IEC61386	5000 cycles minimum	4xOD

Thermal Properties

Test Type	Methods / Standards	Requirements	Value
Minimum Temp	Dynamic IEC61386	Dynamic 5000 cycles	-5°C
Maximum Short Term Temp	IEC61386	Dynamic 3000 hours, 5000 cycles	150°C
Minimum Static Temp	IEC61386	Permanent Use (30,000) Hours	-40°C
Maximum Static Temp	IEC61386	Permanent Use (30,000) Hours	120°C
Cold Bend @ -40 °C	NFR13-903	2xOD	Pass

Chemical Resistance Chart

Key:

Suitable :



Limited Suitability :



Unsuitable :



Not Tested :



● Astm No.1	● Diesel oil	● Methyl Bromide	● Sulphur Dioxide (Gas)
● Astm No.2	● Diethylamine	● MEK	● Sulphuric Acid (10%)
● Astm No.3	● Ethanol	● Nitric Acid (10%)	● Sulphuric Acid (70%)
● 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 TTS 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 4589-2	% Oxygen to support combustion >34%	24.0	%
Glow Wire Rating	IEC 60695	No Ignition to Extinguish with 30s	960	°C
Flammability	UL94	Vertical (V0) or Horizontal (HB)	V0	HB/V0
Flammability	IEC 61386	Self Extinguishing - Vertical Burn	2	Seconds
Ignition Rating	NF F16-101/2	Glow Wire & oxygen index	I2	-
-	-	-	-	-

Smoke

Test Type	Method / Standard	Requirement	Result	Unit
Fume Rating	NF F16-101	Smoke & Toxicity	F1	-
Smoke Density	BS6853:1999	-	0.062	Absorbance
Smoke Density	TS45545-2	R23 - HL3 <0.75 HL2 <0.9 HL1 <1.2	0.64 (HL3)	CIT (NLP)
-	-	-	-	-

Toxicity

Test Type	Method / Standard	Requirement	Result	Unit
Halogen Free	LUL	<0.5%	Pass <0.1%	Pass/Fail
Phosphorous Free	LUL	<0.5%	Pass <0.1%	Pass/Fail
Toxicity	BS6853:1999	-	3.21	R
Toxicity	NES713	<10.0	7.2	-
-	-	-	-	-

Fire Performance Overview

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

Pre Test Conditions

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