

Non-Metallic Systems

PAH Heavyweight Conduit



Technical Characteristics

Conforms to	BSI Kitemark KM-35161 CE Mark to Low voltage directive 2014/35/EU Deutsche Bahn S4, SR2, ST2 EN45545-2 HL2 (R22 & R23) UL1696 / CSA 22.2 No:227.3 - File number E173968 GOST C-GB 3031.B.00311
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Approvals and Standards	    
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Degree of mechanical protection	Medium flexibility & fatigue life
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Degree of protection	IP40 - Adapting IP66 - ATS, Adaptalok, Adaptaseal IP67 - ATS, Adaptalok + ALS Seal, Adaptaseal IP68 - ATS, Adaptalok + ALS Seal, Adaptaseal IP69 - ATS, Adaptalok + ALS Seal
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UV protection	Very High
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Finish	Black (BL), Grey (GR) RAL7031
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Application	Indoors / Outdoors - Rail, heavy industrial, buildings & machinery
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Normal operating temperature range	Application	Min Temp	Max Temp
	Static	- 40°C	+120°C
	Dynamic	- 5°C	+150 °C

For use with - Fitting range	Adaptalok & ATS , Adaptaseal and Adapting fittings
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Fire performance	Test Standard	Performance Rating	
	BE EN 61386-1	Pass	Self Extinguishing & Halogen Free
	EN45545-2	HL2 (R22 & R23)	
	DIN 5510-2	S4, SR2, ST2, FED 0.504	
	UL94	V0	



Testing data	Click or See pages 3 & 4
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Type of material	Polyamide (Nylon) 6 - flame retardant & Heat stabilised
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Technical & Dimensional Data

Part No.	Conduit Size			Dimensions (mm)				Average Weight (KG/100m)
	Nominal Conduit Size	NW Conduit Size	Conduit Pitch	(A) Outside Diameter	(B) Mini-mum Bore	(C) Min. Bend Radius	Reel Length (m)	
PAFH13 *	13mm	10	Fine	13.10	9.55	40	50	3.5
PAFH16	16mm	13	Fine	15.95	11.15	50	50	4.6
PACH21	21mm	17	Coarse	21.20	15.40	65	50	7.8
PACH28	28mm	23	Coarse	28.35	21.35	85	50	13.0
PACH34	34mm	29	Coarse	34.50	26.70	105	50	15.5
PACH42	42mm	36	Coarse	42.40	34.60	130	25	19.5
PACH54	54mm	48	Coarse	54.30	46.20	165	25	26.0

To order quote part number, colour & reel length, e.g PACH21/BL/50M
* UR not applicable to size 13

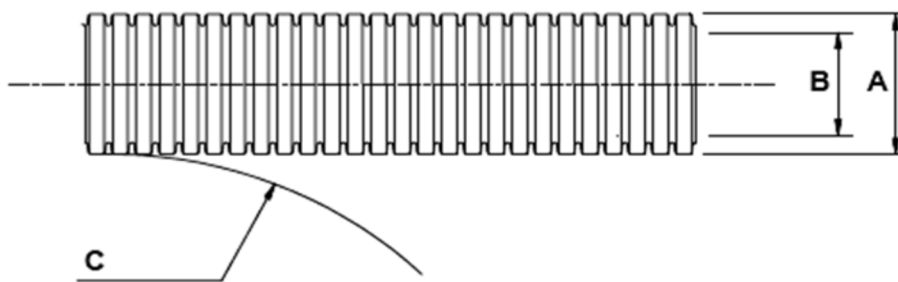


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BS EN 61386 Classification

	Fitting	Compression	Impact	Min temp	Max temp	bending	electrical	IP solids	IP water	Corrosion	Tensile	Non-flame Propogating	Suspended load
PACH21	AT	2	4	2	4	4	0	6	7	-	2	1	0

Mechanical Properties

Test Type	Methods / Standards	Requirements	Value
Crush Strength	IEC61386	<25% crush >90% recovery	>320N (Class 2)
Impact Strength	IEC61386-1	@-5°C No Cracks. <20% deformation min value	>6.0J (Class 4)
Tensile Strength	AFX norm T1987	Pull off of fitting minimum value	250N
Dynamic Bend Radius	IEC61386-23	5000 cycles minimum 21mm size conduit	120mm
Static Bend Radius	AFX norm T1985	21mm size conduit	65mm

Thermal Properties

Test Type	Methods / Standards	Requirements	Value
Minimum Temp	Dynamic IEC61386	Dynamic 5000 cycles	-5°C
Maximum Short Term Temp	IEC61386	Static & Dynamic 3000 hours, 5000 cycles	150°C
Minimum Static Temp		Permanent Use (30,000) Hours	-40°C
Maximum Static Temp		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 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 4589-2	% Oxygen to support combustion	28.5	%
Glow Wire Rating	IEC 60695	No Ignition to Extinguish with 30s	850	°C
Flammability	UL94	Vertical (V0) or Horizontal (HB)	V0	HB-V0
Flammability	IEC 61386-1	1Kw Burner @ 45° Vertical burn	Pass	Pass/Fail





Smoke

Test Type	Method / Standard	Requirement	Result	Unit
Optical Density	ISO-5659-2	<150 (HL3 R22)	148	-
Smoke Density	BS6853	Ao <0.061 (Class II)	0.026	Ao
Smoke Density	ASTM E-662	Ds <100 in both modes	21/65	Ds Max

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
Sulphur Free	LUL	<0.5%	Pass<0.1 %	Pass/Fail
Toxicity	NF X70-100-1&2	C.I.T _{NLP} <0.75 (HL3 R22)	0.59	-
Toxicity	BS 6853	<3.6 (Class II)	2.95	-
Toxicity	DIN5510-2	FED t _{zul} = 30min <1	0.504	-

Fire Performance Overview

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

Pre Test Conditions

Duration	Standard	Temperature	Relative Humidity
168 (Hours)	BS EN 61386-1	23 (°C)	50 (%)

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