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TECHNICAL INFORMATION
WG_GRP Ladders & Trays_Technical Information_CCD_20220019

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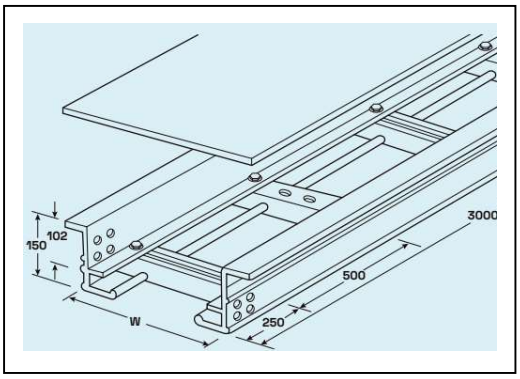

1 Scope

This document contains relevant technical information related these GRP product ranges,

Art. No.	Product range description
	GRP Cable ladder models: GXL, GAL, GMLN
	GRP Cable trays: CABSYS & GMAX
	GRP Common accessories for trays & Ladders

2 Declaration

We, WIBE GROUP declare that MITA branded products, when subject to correct installation, maintenance and use conforming to their intended purpose, according to applicable regulations and standards in the country where they are installed, to the supplier's instructions and to accepted rules of the art comply with Essential Requirements of following the European Low Voltage Directive 2014/35/EU & Electrical Equipment Regulations 2016: UK SI 2016 No 1101 under harmonized standard BS EN IEC 61537

3 Product standard

BS EN IEC 61537: "Cable management – Cable tray systems and cable ladder systems"

"Scope:

This International Standard specifies requirements and tests for cable tray systems and cable ladder systems intended for the support and accommodation of cables and possibly other electrical equipment in electrical and/or communication systems installations. Where

necessary, cable tray systems and cable ladder systems may be used for the division or

arrangement of cables into groups."

The GRP MITA product ranges adquire the following classification according chapter 6 of BS EN IEC 61537 :

6 Classification

6.1 According to material

6.1.1 Metallic system component (e.g. metallic accessories & fasteners)

6.1.2 Non-metallic system component

6.2 According to resistance to flame propagation

6.2.2 Non-flame propagating system component

6.3 According to electrical continuity characteristics

6.3.1 Cable tray system or cable ladder system without electrical continuity characteristics

6.4 According to electrical conductivity

6.4.2 Electrically non-conductive system component

6.5 According to resistance against corrosion

6.5.1 Non-metallic system components

6.5.2 System component made of steel with metallic finishes or stainless steel

(e.g. metallic accessories & fasteners)

6.6 According to temperature

6.6.1 Minimum temperature > -40°C

6.6.2 Maximum temperature +90

6.7 According to the perforation in the base area of the cable tray length

Non-perforated Tray Classification: A

Perforated Tray Classification: B

6.8 According to the free base area of cable ladder length

Classification X

10 Mechanical properties

MITA Cable tray systems and cable ladder systems providing adequate mechanical strength. The main criterion for the **SWL** is safety in use of the product. (according to BS EN IEC 61537 and NEMA FG-1)

Product ref	Width	Height	Test type	BS EN 61537 / Span (m)							NEMA				
											8 ft span			12ft span	
				1.5	2	2.5	3	4	5	6	8A	8B	8C	12A	12B
				SWL Kg/m											
GMAX 6M 100x160	100	160	Network Rail requirements (Vertical Load)	-	-	-	-	-	-	45					
			Network Rail requirements (Horizontal load)	-	-	-	-	-	-	24					
			Test type 10.4 single span)	-	-	-	80	70	60	35					
GMAX 6M 200x200	200	200	Network Rail requirements (Vertical Load)	-	-	-	-	-	-	90					
			Network Rail requirements (Horizontal load)	-	-	-	-	-	-	30					
			Test type 10.4 single span)	-	-	-	125	100	80	65					
GRP50-50	50	50	Test type 10.4 single span)	15	10	5	NR	NR	NR	NR	FAIL				
GRP50-75	50	75	Test type 10.4 single span)	15	10	5	NR	NR	NR	NR	FAIL				
GRP100-60	100	60	Test type 10.4 single span)	30	25	20	15	10	NR	NR	FAIL				
GRP200-60	200	60	Test type 10.4 single span)	30	25	20	15	10	NR	NR	FAIL				
GRP300-60	300	60	Test type 10.4 single span)	30	25	20	15	10	NR	NR					
GRP100-80	100	80	Test type 10.4 single span)	30	25	20	15	10	NR	NR	FAIL				
GRP200-80	200	80	Test type 10.4 single span)	40	35	30	25	15	NR	NR	PASS	FAIL			
GRP300-80	300	80	Test type 10.4 single span)	40	35	30	25	15	NR	NR					
GRP400-80	400	80	Test type 10.4 single span)	40	35	30	25	15	NR	NR					
GRP100-110	100	110	Test type 10.4 single span)	30	25	20	15	10	NR	NR					
GRP150-110	150	110	Test type 10.4 single span)	40	35	30	25	15	NR	NR	PASS	FAIL	FAIL		
GRP200-110	200	110	Test type 10.4 single span)	40	35	30	25	15	NR	NR					
GRP300-110	300	110	Test type 10.4 single span)	55	50	45	40	25	15	10	PASS	PASS	FAIL		
GRP400-110	400	110	Test type 10.4 single span)	55	50	45	40	25	15	10	PASS	PASS	FAIL		
GRP150-210	150	210	Test type 10.4 single span)	40	35	30	25	15	NR	NR	PASS	FAIL			

Product ref	Width	Height	BS 61537 / Test Type 10.4, single span (m)									NEMA										
			SWL (kg /m)									8 ft span			12ft span			16ft span			20ft span	
			1.5	2	2.5	3	3,5	4	4,5	5	6	8A	8B	8C	12A	12B	12C	16A	16B	16C	20A	20B	20C
GMLN150	150	100	x	x	100	x	x	x	x	x	x	PASS	PASS	PASS	FAIL	x	x	x	x	x	x	x	x
GMLN200	200	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x	x
GMLN300	300	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x	x
GMLN400	400	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x	x
GMLN450	450	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x	x
GMLN600	600	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x	x
GMLN750	750	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x
GMLN900	900	100	x	x	100	x	50	x	x	x	x	PASS	PASS	PASS	PASS	PASS	x	x	x	x	x	x	x
GXL150	150	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GXL200	200	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GXL300	300	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GXL400	400	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GXL450	450	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GXL600	600	150	x	x	100	x	50	x	25	x	10	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	x	PASS	x	x
GXL750	750	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GXL900	900	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GXL1000	1000	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GAL150	150	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GAL200	200	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GAL300	300	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GAL400	400	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GAL450	450	150	x	x	100	x	50	x	25	x	10	x	x	x	x	x	x	x	x	x	x	x	x
GAL600	600	150	x	x	100	x	50	x	25	x	10	PASS	PASS	PASS	PASS	PASS	PASS	PASS	x	x	PASS	PASS	PASS
GAL750	750	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GAL900	900	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
GAL1000	1000	150	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

4 Raw Material

GRP MITA product ranges is mainly produced by Pultrusion proccess by using polymer matrix with reinforcement material, the type of reinforcement and the additional in-service performance features (e.g., mechanical, electrical, fire retardancy, UV stability, etc.), it´s following the standard *EN 13706-2 " Reinforced plastics composites — Specifications for pultruded profiles — Part 2: Methods of test and general requirements"*

For MITA GRP products the properties values are according to Table 1 below:

- **TABLE 1**		
Polyester / Acrylic resin, glass continuous strand mat, glass roving, polyester surface veil - See specific production specifications for full details – PY1*, MX# * Resin formulations are Halogenated # Resin formulations are Non-Halogenated (ATH only)		
Property	Test method	Requirement
Fibre content by weight	ISO 1172	40-55%
Density	ISO 1183	1800kg/m3
Colour	CIElab	PY1_ RAL 7001 / MX_RAL7004
Mechanical properties (Minimum)		
Full section test	Annex D, EN 13706-2	23 GPa
Tension modulus-axial	EN ISO 527-4	23 GPa
Tension modulus-transverse	EN ISO 527-4	7 GPa
Tension strength-axial	EN ISO 527-4	240 MPa
Tension strength-transverse	EN ISO 527-4	50 MPa
Pin-bearing strength-axial	Annex E, EN 13706-2	150 MPa
Pin-bearing strength-transverse	Annex E, EN 13706-2	70 MPa
Flexural strength – axial	EN ISO 14125	150 MPa
Flexural strength – transverse	EN ISO 14125	50 MPa
Interlaminar shear strength-axial	EN ISO 14130	25 MPa
other mechanical properties		
Impact Resistance	NR Standard NR L2 TEL 00013 Specification for Cable Troughing	30 Joules
Barcol hardness	ASTMD2583	30+

Thermal properties		
Thermal expansion (k)		8 x10-6
Thermal Conductivity & Thermal Resistivity (sample Thickness 25 mm)	EN 12667	Density: 1772 kg/m3 Thermal Resistance: 0,096 m2K/W Thermal Conductivity: 0,264 W/m.K
Temperature range for application	IEC 61537	- 40°C to +90°C
Electrical properties		
Surface Resistance	EN 60079-0	1.8 KΩ (PY1C) (Anti-static version)
Surface Resistivity	EN 60079-0	19,0 kΩ/square (PY1C)
Dielectric strength	D149,	1.38KV/mm(Axial), 200V/mm(transverse)
Insulation Resistance	ASTM D257	$10x10^{12}$ ohms
Weathering properties		
UV Properties	BS 2782 / ASTM D256 / ISO 178 / ASTM D638	Resistant to UV Radiation and Weathering
Exposure to laboratory light source.	ISO 4892-2,	DE color diff. 1,68 Tensile Strength diff.= 23,2 N/mm2 Elong. at Breack diff. (%) = 0,051 Flex.Strength diff. = -12,99 N/mm2 Izod impact streng. diff. = 18,6 J/m
Water absorption	BS 2782-5 Method 552A	24h= 0,15% 4 days= 0,25 % Weight after 500h = +0,7%
Fire properties		
Surface Spread of Flame	BS 476-part 7	Class1 (PY1, PY1C and MX) Class2 (PY2)
Fire Propagation	BS 476 Part 6	INDEX "I" 5,7 (MX)
50W Vertical Burning Test	UL94	V0 (PY1, PY1C and MX)
500W Vertical Burning Test	UL94	5VA (PY1, PY1C and MX)
Glow Wire	BS EN 60695-2-12-2001	960
Smoke Density	BS 6853 App D Clause D.8.4 (1999)	Ao(on) 5,7 Ao(off) 6,72(MX)

Area based toxic fume	BS 6853 Annex B.2	R value= 0.48 (MX)
Toxicity Index	NFX 70-100	C.I.T. (NF F 16-101) = 2.08
		R value (BS 6853 Annex B1/ LUL S1085 A.1)= 0.28
		C.I.T. $_{NLP}$ (BS EN 45545-2)= 0.06
Toxicity Index	NES 713	Index 0.73
(*) Oxygen Index	ISO 4589	40% (Assumption)
Halogen Contents	BS EN 50642 (New IEC 63355)	Halogen Free (MX)
Halogen Content	IEC 60754-1	Halogen Free PY2

Four resin options are available with different levels of fire performance to match various applications found within Industry. MX is approved for Network Rail and London Underground installation.

Resistance to Various Chemical Agents

Chemical agent	Concentration	Temp °C	Resistance
Acetic Acid	5%	65	+
Aluminium Sulphate		95	+
Ammonium Nitrate	100%	95	+
Beer		20	+
Benzene		20	+
Calcium Chloride		95	+
Chlorine Gas/Water		20	+
Chromic Acid	5%	95	+
Copper Sulphate		95	+
Ethylene Chlorohydrin		65	+
Ethylene Glycol		95	+
Ferrous Sulphate		95	+
Fatty Acids	100%	95	+
Hydrochloric Acid	1%	95	+
Hydrochloric Acid	10%	65	+
Hydrochloric Acid	37%	25	+
Kerosene		95	+
Magnesium Chloride		95	+
Napthaline		95	+
Nitric Acid	30%	20	+
Phosphoric Acid	10%	95	+
Phosphoric Acid	10%	95	+
Phosphoric Acid	85%	65	+
Salt Water		65	+
Sodium Bicarbonate		65	+
Sodium Bisulphate		25	+
Sodium Carbonate		25	+
Sodium Chloride		95	+
Sodium Hypochlorite	5%	65	+
Sodium Nitrate	100%	95	+
Sodium Silicate		25	+
Sodium Sulphate		95	+
Sulphuric Acid	1%	95	+
Sulphuric Acid	5%	65	+
Sulphuric Acid	10%	76	+
Sulphuric Acid	30%	25	+
Trisodium Phosphate		25	+
Water Sea/Tap	100%	50	+
Zinc Sulphate		65	+

5 Fire Performance (Market requirements):

MITA products ranges is using several Resine formulations depending of the application requirements in relation to fire behavior (see table below):

		COMMERCIAL REFERENCE			
FIRE STANDARD		PY2	PY1	PY1C	MX
BS 476 – Part 7(1997)	Surface spread of flame	●	●	●	●
BS EN 60695-2-12:2001	960 Glow wire	●	●	●	●
UL94 V0	50W Vertical burning test		●	●	●
UL94 5VA	500W Vertical burning test		●	●	●
NES 713	Toxicity Index			●	●
BS 476 Part 6	Fire propagation				●
BS 6853 D.8.4	Smoke density				●
BS 6853 Annex B.2	Area based toxic fume				●
NFX 70-100	Toxicity index				●
BS-EN 50642:2018	Test for halogens				●
IEC 60754-1	Test for halogens	●			
EN 60079-0 2009	Anti-static			●	

LOCATION			
In/Outdoor, medium fire resistance	In/Outdoor, high Fire resistance	In/Outdoor, high Fire resistance, Anti-static	LUL Approved for use in section 12 Stations.

6 Other standards & Homologations:

Network Rail :

- NR Standard NR L2 TEL 00013 Specification for Cable Troughing
- RIS-7700-INS-20LSS-201
- RT-ET-11821

7 Other Certifications & Approvals:

Net Work Rail – PADS - Certificate of Acceptance PA05/00442

Lloyds Register Certificate of Fire Approval:

MX: LR23156722SF (SAS F170055) / PY1C: LR23155692SF (SAS F170054) / PY1: LR23155683SF (SAS F170053) / PY2: LR23155620SF (SAS F170052)

RISQS Certification – Supplier Number 8801

Added information:

This product is intended to be installed and maintained by qualified professionals.


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