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GLOBAL- DURA



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Global-Dura is the South African brand name for world class Pre-painted aluminium-zinc coated steel sheets with a high quality Super Polyester coating for roofing products. Produced by KG Dongbu Steel and supplied exclusively to Global Roofing Solutions under a strategic partnership agreement.

KG Dongbu Steel, established in 1967 is committed to producing world class quality products. All products are manufactured in compliance with ISO 9001:2015 Quality Management Systems with regular audits to ensure this certification is maintained. KG Dongbu Steel has been producing AZ coated material to market since 1998 under a license agreement from BIEC International, Inc. (a wholly owned company by Blue Scope Steel)

KG Dongbu pre-coated steel products are sold worldwide to countries like North & South America, Europe, Asia, Australia, New Zealand and the Middle East.

KG Dongbu Steel has a South African based office to handle local warranty applications and product queries.

The Global-Dura Super Polyester paint system has been carefully selected for its excellent durable weather resistance suitable for the harsh African climate. The high solids paint system has advanced UV durability due to its special acrylic resin component. Depending on the environment, Global-Dura can be specified in the appropriate metallic coating of AZ150 and AZ200.

Protection is provided by the patented 55% Aluminium, 43.4% Zinc and 1.6% Silicon Alloy metallic coating over base metal steel, decorated by the high solids Super Polyester paint system, providing additional protection coupled to superior UV, chalk and fade performance.

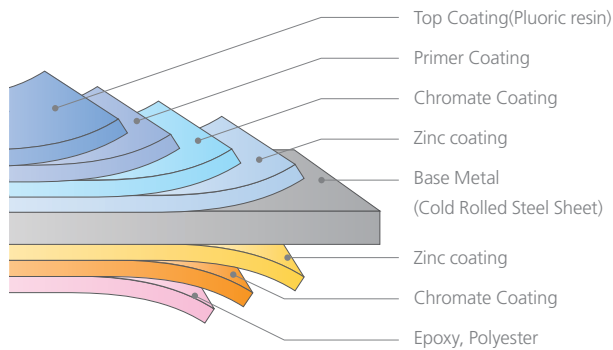




GLOBAL-DURA CHART

Egret White
Barn Owl White
African Grey
Hawk Grey
Heron Grey
Loerie Green
Indigo Blue
Sunbird Red
Eagle Brown

CROSS SECTION OF PAINTED PRODUCT



- Materials used for prepainted steel sheet: GI, GA, EGI, SGL, AL, BP, TFS, TP, SUS, ALCOT etc.
- 2COAT 2BAKING is available for a coating layer on both the top and back sides.
- Standard 5+20µm

Gloss retention of Super Polyester paint > 60% tested in accordance with ASTM 154 which outperforms the UV resistance of silicone modified polyester paint with gloss retention of > 40%

WARRANTY GUIDE CHART

GLOBAL-DURA PRECOATED METAL

Corrosive environments Agricultural or C5 very severe : Prior consultation with the product provider is recommended to ensure correct product specification		ISO 9223 CLASSIFICATION		
		C1-3 MILD TO MODERATE	C4 SEVERE	C5 VERY SEVERE
ROOFING AZ200	FINISH COATING	15 years	15 years	N/G
	PERFORATION	15 years	15 years	15 years
WALL CLADDING AZ200	FINISH COATING	20 years	15 years	N/G
	PERFORATION	20 years	20 years	15 years
ROOFING AZ150	FINISH COATING	15 years	10 years	N/G
	PERFORATION	15 years	15 years	10 years
WALL CLADDING AZ150	FINISH COATING	20 years	15 years	N/G
	PERFORATION	20 years	20 years	15 years
ROOFING AZ100	FINISH COATING	10 years	7 years	N/G
	PERFORATION	15 years	15 years	
WALL CLADDING AZ100	FINISH COATING	10 years	7 years	N/G
	PERFORATION	20 years	15 years	10 years

Warranties may be subject to a physical site evaluation to accurately determine exposure to elements and potential corrosion factors. A site specific warranty will be issued upon completion of works. The final warranty will be issued for a minimum of 10 years provided the materials are installed by suitably qualified people adhering to generally accepted methods of installation and industry codes and standards.

MAINTENANCE

ISO 9224 zone classifications

	C1-2 / MILD	C3 / MODERATE	C4 / SEVERE	C5 / VERY SEVERE
Roofing	Natural washing by rainfall	Natural washing by rainfall	Natural washing by rainfall	Natural washing by rainfall
Exterior Cladding	Natural washing by rainfall Manual washing 12 monthly	Natural washing by rainfall Manual washing 6 monthly	Natural washing by rainfall Manual washing 3 monthly	Natural washing by rainfall Manual washing 3 monthly

* Under the terms of the warranty it may be necessary to provide proof of a maintenance schedule as per the maintenance requirements set out above

* Failure to adequately maintain Global-Dura pre coated metal products may void the warranty

* If there is no rainfall or natural washing, Roofing needs to be washed as per cladding 3 / 6 / 12 monthly.

* When solar panels are installed on top of roof sheeting, it is advisable to consider the sheeting underneath the Photo Voltaic panels as being unwashed and to comply with the washing requirement for cladding. Washing of sheeting could be included when the solar panels are washed down.

QUALITY ASSURANCE

KG Dongbu Steel, established in 1967 is committed to producing world class quality products. All products are thus manufactured in compliance with ISO 9001:2015 Quality Management Systems with regular audits to ensure this certification is maintained.

Thereby, KG Dongbu Steel achieved KS, JIS, ASTM, EN, BIS and IRM certificate standards. And manage the strictest Quality Assurance to commit and provide the best quality product to customers.

QUALITY TESTING

Global-Dura is subjected to various quality testing during the manufacturing process. These would include mechanical property as well as coating performance testing. The following methods are used-

Hardness testing

Tensile and Yield testing

Elongation percentage

Impact testing

Bend testing

Metallic coating mass

Paint coating thickness

Pencil hardness

MEK Rub Test

UV resistance

Salt Spray Test

PRODUCT TESTING

To ensure Global-Dura performs under weather conditions, the product is subjected to both laboratory and real-life testing.

QUV/QUB testing: Samples are exposed for predetermined periods to UVA and UVB rays at fixed temperatures to ensure conformance to published results.

Real-live testing: Various sites in different atmospheric categories are monitored for visual performance



TECHNICAL SPECIFICATION

Mechanical Properties

	G550	G275
Yield strength, Mpa	550	375
Tensile strength, Mpa	570	380
Elongation on 50mm GL %	NA	16

Guaranteed minimum at ambient temperature

Supply conditions

AZ150/ AZ200	20um top coat
	5um corrosion inhibitive primer
	7um backing coat - coal grey
	* For applications in severe coastal conditions additional primer 5um will be applied to AZ200
Flatness	ASM 924M and ISO 16163

Metal Thickness (mm)

Range	Tolerance Width < 1200	Width > 1200
>0.45~0.5	± 0.03	± 0.04
>0.5~0.8	± 0.04	± 0.05

Specific requirements possible on agreement.
Metal thickness measured over Aluzinc coating.

Typical Reflective Index

Colour Range	RAL	CODE	Total Solar Reflectance	Thermal Emittance	Solar Reflectance Index
Egret White	RAL 9003	P7M445B	60.2%	0.82	69.72
Barn Owl White					
African Grey	RAL 7042	P9M564B	20.1%	0.84	15.84
Hawk Grey	RAL 7012	P9M573B	9.1%	0.84	2.1
Heron Grey	RAL 7021	P9M584B	5.6%	0.83	-2.99
Loerie Green	RAL 6028	P4M464B	9.6%	0.83	2.16
Indigo Blue					
Sunbird Red	RAL 3009	P1M143B	27.8%	0.84	26
Eagle Brown	RAL8016	P6M175B	7.5%	0.83	-0.55

The results reported have a measurement uncertainty of +/- 5 units. Please note this figure may vary depending on AZ coating weight.

The relevant code to which each colour was tested in accordance ASTM C-1549 or ASTM E1980.

Branding

GLOBAL ROOFING SOLUTION GLOBAL-DURA 925×0.5 TCT

Coil Width

Range	Tolerance
925mm~1220mm	+5/-0

Coating Adhesion - 180 bend Test

Coating Class	Guaranteed Minimum	
	G550	G275
AZ150/AZ200	2t	1t

Fire Rating

Property	Grading	Standards
Combustibility	Non-Combustible	KS F ISO 1182
Flame Spread (FS)	No Flame Spread	KS F ISO 1182

Based on 0.40mm thickness

Coating Weight

Coating Class	Minimum (g/m ²)	AZ coating Thickness / microns
AZ150	150	40.5
AZ200	200	54

Triple spot testing

MATERIAL SELECTION

The coastline of South Africa is a particularly harsh environment and is high in chlorides. In urban areas, corrosion is accelerated by the presence of sulphur emissions from industry and traffic which cause premature corrosion of steel sheeting and other metals. The choice of the correct steel substrate and steel coating is therefore important to avoid high replacement costs and losses in rentals, etc. Please request additional information from GRS in this regard.

Compatibility of materials in direct contact									
Materials used for roof drainage system and any cladding material	Materials used for accessories, fasteners or upper surface cladding								
	Galvanised	Galvanised +paint	Aluzinc coated steel	Aluzinc coated steel +paint	Zinc	Aluminium and Aluminium alloys	Copper and Copper alloys	Lead	Stainless steel
Galvanised	YES	YES	YES	YES	YES	YES	NO	NO	NO
Galvanised +paint	YES	YES	YES	YES	YES	YES	NO	NO	NO
Aluzinc coated steel	YES	YES	YES	YES	YES	YES	NO	NO	NO
Aluzinc coated steel+paint	YES	YES	YES	YES	YES	YES	NO	NO	NO
Zinc	YES	YES	YES	YES	YES	YES	NO	NO	NO
Aluminium and Aluminium alloys	YES	YES	YES	YES	YES	YES	NO	NO	NO
Copper and Copper alloys	NO	NO	NO	NO	NO	NO	YES	NO	NO
Lead	NO	NO	NO	NO	NO	NO	YES	YES	NO
Stainless steel	NO	NO	NO	NO	NO	NO	YES	YES	YES

Acceptability of drainage from upper to lower surface												
Lower drainage system Material	Accessories or fasteners or upper surface											
	Galvanised	Galvanised +paint	Aluzinc coated steel	Aluzinc coated steel +paint	Zinc	Aluminium and Aluminium alloys	Copper and Copper alloys	Lead	Stainless steel	Slate and glazed tiles	Glass and plastic	
Galvanised	YES	NO	NO	NO	YES	NO	NO	YES	NO	NO	NO	
Galvanised +paint	YES	YES	NO	NO	YES	NO	NO	YES	NO	YES	YES	
Aluzinc coated steel	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	
Aluzinc coated steel +paint	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	
Zinc	YES	YES	NO	NO	YES	NO	NO	YES	NO	NO	NO	
Aluminium and Aluminium alloys	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	
Copper and Copper alloys	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Lead	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	
Stainless steel	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	

Material Description:

Galvanised > Zinc (Zn) coated steel (Fe)

Aluminium -Zinc coated steel > Aluminium (Al)-Zinc (Zn) alloy coated steel (Fe)

Zinc > Zinc (Zn)

Aluminium > Aluminium (Al)

Copper > Copper (Cu)

Lead > Lead (Pb)

APPLICATION GUIDELINE FOR ROOFING AND CLADDING SOUTH AFRICA

Guideline for Product selection: Global-Dura

	CX (100~400m)	C5 (401~1000m)	C3-C4 (1-40km)	C1-C2 (>40km)
	Extreme industrial, coastal and offshore	Industrial, coastal and aggressive areas	Light industrial, low levels of airborne pollution	Urban, rural, low levels of airborne pollution
Global-Dura AZ200	Recommended (Cut edge to be sealed)	Recommended	Recommended	Recommended
Global-Dura AZ150	Not Recommended	Recommended (No exposed bottom surface)	Recommended	Recommended



HANDLING & STORING GUIDELINES OF PRE COATED METAL SHEETS

Pre-coated metal has been used for various applications since it was developed. However, to achieve the longest possible life and the best possible looks when installing steel roofing, one needs to observe handling and storage. Generally, pre-coated metal is produced and delivered in coil form, so these guidelines are starting from handling and storage of the coil to cut-to-length, roll-formed sheets, and sandwich panels, according to its applications. Please maintain the following guidelines for handling and storage of material. If not adhered to, the material could not be covered by our guarantee.

1. HANDLING

Walking on Roof Sheeting:

- Clean, soft-soled shoes should be worn. Dunlop Volley shoes with natural rubber soles are recommended for use when installing and inspecting roof sheets.
- Keep weight evenly distributed over the soles of the feet, as new sheets may be slippery.
- Walk on purlin lines wherever possible.
- Comply with relevant “working at heights” legislation.

Cutting sheets on site:

- Use metal blades rather than carborundum disc angle grinders as they produce fewer damaging hot metal particles, leaving fewer burrs on the cut sheet. GRS recommends the use of cold cutting saws (such as the Makita 4130 unit or an equivalent saw) with an appropriate blade.

Fasteners and accessories:

- All screws should have rubber sealing washers. Rubber washers should be EPDM quality or the equivalent and be free of carbon fillers.
- Buy fasteners that are as durable as the roof sheeting you have purchased and that comply with class AS.3566 Class 3. (AS3566 is a performance-based standard that specifies a minimum coating thickness for fasteners to be used. From a (Class3) or (Class 4) in severe environments). Using the wrong fasteners will lead to premature failure of the roof sheet.

Use of sealants:

- Use neutral cure silicone rubber sealants which offer the following:
 - a) Good adhesion to the clean surface of roof sheeting.
 - b) Water resistance and are non-corrosive to the sheeting.
 - c) Resistance to extremes of heat and cold while retaining good flexibility.
 - d) Provide high resistance to ultra-violet rays (sunlight) and have a long service life.





Surface damage:

- Touch-up paint is not recommended to repair surface scratches on Global-Dura painted steel. The different weathering patterns of touch-up paint will lead to an inconsistent colour across the sheet's surface. It is recommended that severely damaged sheets be replaced.
- If the Global-Dura painted steel sheet is only scratched back to the metallic coating, leave the scratch bare as the sacrificial properties of Zinc will protect the surface from corrosion.
- If the sheet is scratched back to the cold-rolled metal base and the scratch is greater than 2mm wide, sacrificial protection will be reduced and those sheets should be replaced.

Following Trades:

- Pipes and other penetrations made from copper or lead must be post-painted to prevent the deposition of metallic copper ions upon the roof surface. Failure to comply with this requirement will result in the accelerated corrosion of the roof sheet.
- Any mortar/concrete should be removed immediately from the roof sheets.

Solar Panels:

- Framed photovoltaic (PV) panels can be successfully installed on Global-Dura pre-painted steel roofs.
- The following maintenance practices will help to ensure the long-term performance, durability, and aesthetic appeal of your Global-Dura pre-painted steel roof.
 - a) Roof clearance – Ensure adequate clearance is available between the PV panels and your Global-Dura steel roof sheeting. The installation of PV panels should allow free drainage of moisture from all surfaces and avoid ponding of water.

- b) Product compatibility - Due to a phenomenon known as galvanic corrosion, some commonly used metals can cause accelerated corrosion when used with Global-Dura steel. (Refer to Tables above - Acceptability of drainage from upper to lower surface).
- c) Roof durability – Unwashed areas have an increased risk of corrosion compared to washed areas. Regular cleaning is recommended. Generally, unwashed areas should be cleaned with fresh potable water at least every 3 months for coastal or industrial areas and at least every 6 months for other applications.
- d) Fasteners and Brackets - Used in the installation of PV panels should have a service life compatible with the expected performance of the roofing made from Global-Dura steel and be appropriate for the PV panels. Use the GRS-approved PV Clamps on GRS Concealed fix roof sheeting, to maintain the roof warranty.
- e) Roof Profile – Different roof profiles provide different supporting strengths.

Swarf removal:

- Remove all metal scraps, pop rivet mandrels and excess fasteners from the roof at least daily to avoid rust stains.
- When cleaning up after having installed roof sheets clean out the gutters, ensuring not to leave metal tailings.

2. STORAGE

- ① If you store material for a while, it should be put on a clean site to secure the surface and use a wooden pallet or rubber mat to prevent direct contact from the ground.
- ② Do not store material in high stacks, it could damaged the material surface because of weight.
- ③ When storing indoors, its condition should be constant temperature and low humidity to protect from moisture.
- ④ In case of not using the entire coil at once, it should be repacked until next time.
- ⑤ If the profiled sheeting is not used within 30 days, please. keep it indoors.
 - The material should be always stored dry, therefore cover the stack with a tarp and stack sheets or bundles clear of the ground to avoid material getting wet.
 - Should material get wet, unpack wet sheets to allow drying. Use a clean cloth to remove surface moisture and stack it in such a way that air circulation completes the drying process.

3. USAGE

If you have changed or will change the production condition, please notify the manufacturer in advance to prevent any claim by adjusting material to your facilities.

