



شركة المصنع السعودي لصناعة البلتروجن للصناعة
Saudi Pultrusion Industries for Industrial Co.

Providing solutions
to design problems
for engineers

► **KHOBAR**

P.O Box 2531, al khobar 31952, saudi arabia
Tel. +966 13 858 0404
Fax. +966 13 858 0202

► **JEDDAH**

jeddah, western region, saudi arabia
Madina Road
Al Humaidy Tower, 5th floor, office 501
Tel. +966 12 616 9906
Fax. +966 12 691 2761

► **FACTORY**

Al Hassa industrial City
P.O Box 24042, Al Hassa 31982, saudi arabia
Tel. +966 13 534 2266
Fax. +966 13 534 2299

COMMERCIAL REGISTRATION
2257027567

COMPANY REQUALIFICATION



www.saudi-pultrusion.com

COMPANY
PREQUALIFICATION

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Saudi Pultrusion Industries for Industrial Co. established in 2005 has brought in modern technology and machinery that manufacture Fiberglass Reinforced Composite Materials (FRP or GRP) which offer a combination of benefits and advantages not available in steel, aluminum, or timber.

FRP profiles are now widely reconciled and accepted in the engineering and construction field as an alternative replacement and substitute to traditional materials where long-term performance in an aggressive and corrosive environment is required. Because of their specific unique characteristics and properties pultruded profiles can be used in a wide range of applications.

SPI offers solutions to the engineering design problem and high-quality products that meet the ASTM and other international standards hence the company has been awarded the EN ISO 9001:2015.



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The Pultrusion process is a continuous process like extrusion (which makes plastic pipes or aluminum window frames, etc.).



The difference between the two is that Extrusion pushes the material through a hardened steel die while Pultrusion, as it's name implies, pulls the continuous fiber reinforcement in roving or mat/roving form through a resin bath where each fiber is coated with a specially formulated resin matrix.

The fully "wet-out" fibers are then drawn into a heated steel die. The thermoset resin cure is initiated by the heat from the die which acts on the catalyst in the resin formulation. The rate of the chemical reaction is controlled by heating and cooling zones along the length of the die. The high strength Pultruded profile produced is ready to use as it exits the pultrusion machine.

Although the concept of Pultrusion seems quite simple, there is a delicate balance that has to be maintained between materials, temperature and production speed.

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PROCESS ADVANTAGE

The process provides maximum flexibility in the design of pultruded FRP profiles. Since the process is continuous, length variations are unlimited to shipping capabilities.

Specific strength characteristics can be designed into the composite, optimizing laminate performance for a particular application by strategic placement of high performance reinforcements. Color is uniform throughout the cross section of the profile, eliminating the need for many painting requirements.



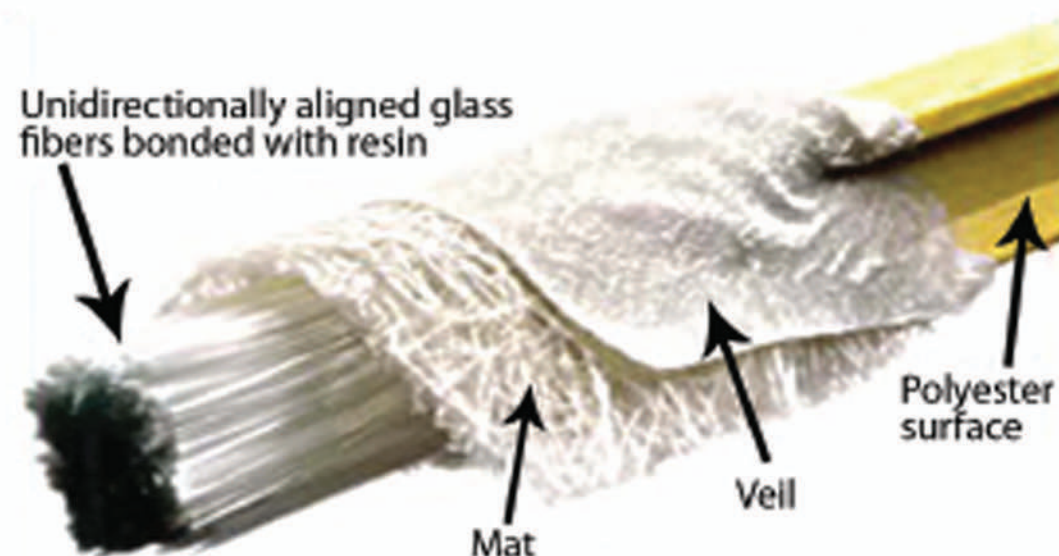
RAW MATERIALS USED IN PULTRUSION PROCESS

■ RESIN

Selected high performance polyester resins are combined with suitable fillers, catalysts, UV inhibitors and pigments to formulate the resinous matrix binding the fibers together and providing the structural corrosion resistance and other properties required. Although the vast majority of application can be serviced by the variety of polyester resins available, certain application requirements of higher strength or corrosion resistance can be satisfied with the selection of vinyl ester

■ MAT

Continuous strand mat provides the most economical method of obtaining a high degree of transverse, physical properties. The mats are layered with roving, this process forms the basic compositions found in most pultruded products. The ratio of mat to roving determines the relationship of transverse to longitudinal physical properties.



■ ROVING

Fiberglass roving provides the high longitudinal strength of pultruded products. The amount and location of these reinforcements can be determined in the design stage and can alter the subsequent physical properties of the finished product. Roving also provides the tensile strength needed to pull the other reinforcements through the die; it is a necessary in the profile design.

■ VEIL

Since pultrusion is a low-pressure process, fiberglass reinforcements normally appear close to the surface of the product. These can affect the appearance, corrosion resistance or handling of the products. Surface veils can be added to the laminate construction to displace the reinforcement from the surface adding a resin-rich finish to the profile. The two most commonly used veils are E-glass and polyester.

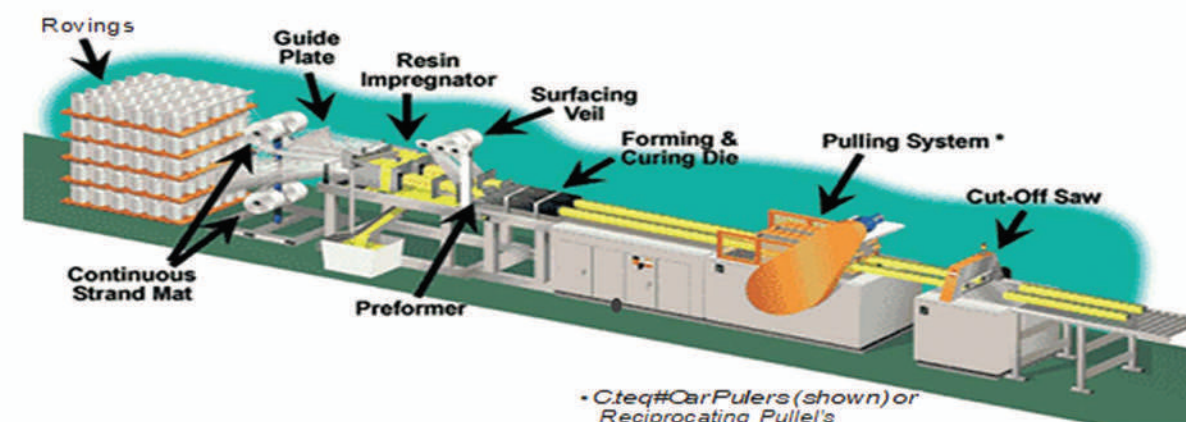


WHAT IS PULTRUSION?

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Generally, pultrusion is one process or method of producing composite materials, widely known as FRP (fibreglass reinforced plastics).

It is a continuous process using reinforcement in specially formulated thermosetting resin matrices.



PULTRUSION PROCESS

- Pre selected reinforcement materials, such as fibreglass roving, mat and surface veil are drawn through a resin bath in which all materials are thoroughly impregnated with a liquid thermosetting resin.

The wet out fiber is formed to the desired shape and pulled into a heated steel die. Once inside the die, the resin cure is initiated by controlling precise elevated temperatures. It solidifies in the exact cavity shape of the die, as it continuously pulled by the pultrusion machine.



COMPANY INFORMATION

COMPANY

SAUDI PULTRUSION INDUSTRIES FOR INDUSTRIAL CO.

ADDRESS

P.O. Box 2531, Al Khobar 31952, Saudi Arabia

Telephone No.

+966 13 534 2266

Fax No.

+966 13 534 2299

Web Site

www.saudi-pultrusion.com

Factory

AL HASSA INDUSTRIAL CITY
P.O. Box 24042, Al Hassa 31982
Tel. No. +966 13 534 2266
Fax No. +966 13 534 2299

Branch Office

Jeddah, Western Region, Saudi Arabia
Madina Road crossing Korish Road
Al Humaidy Tower, 5th floor, office 501
Tel. 012 616 9906 Fax. 012 691 2761

Commercial Registration

2257027567

Industrial License

120876

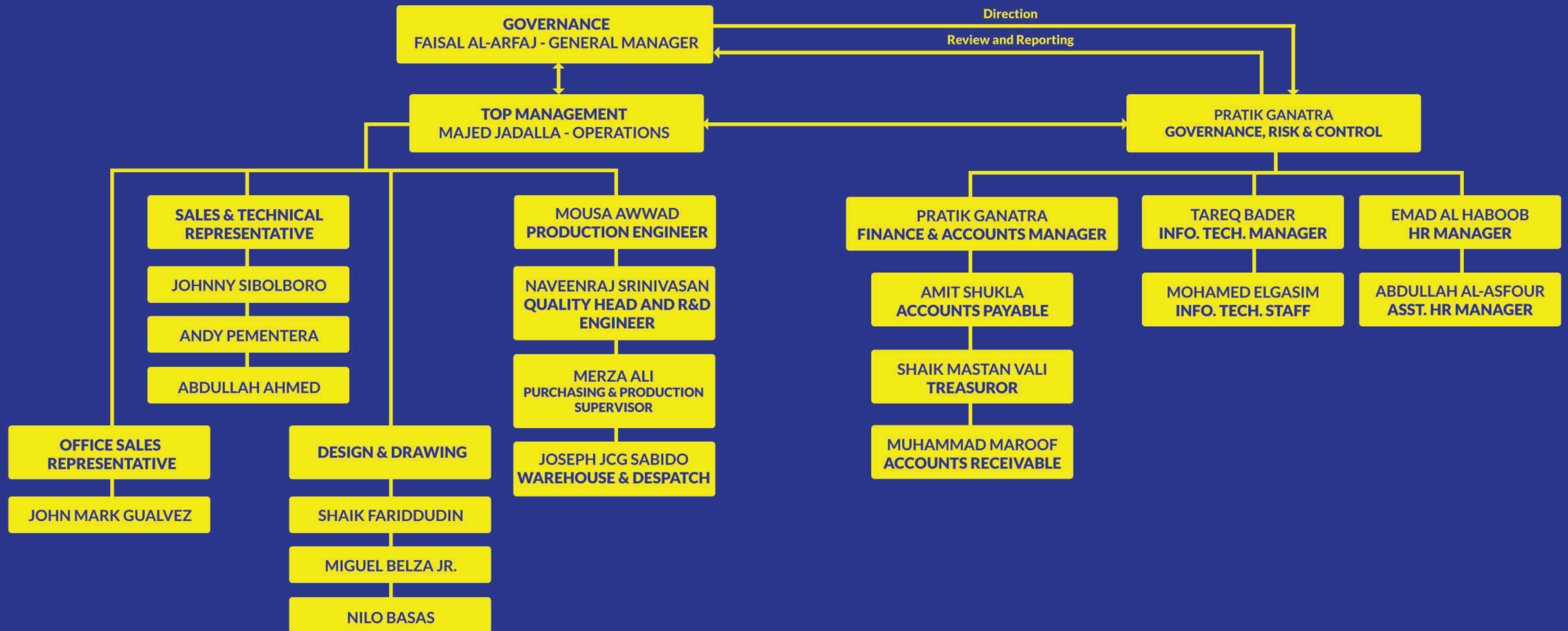
Name of Owner

MR. FAISAL AL-ARFAJ & MAJED AL-ARFAJ
(100% Saudi National)

COMPANY INFORMATION

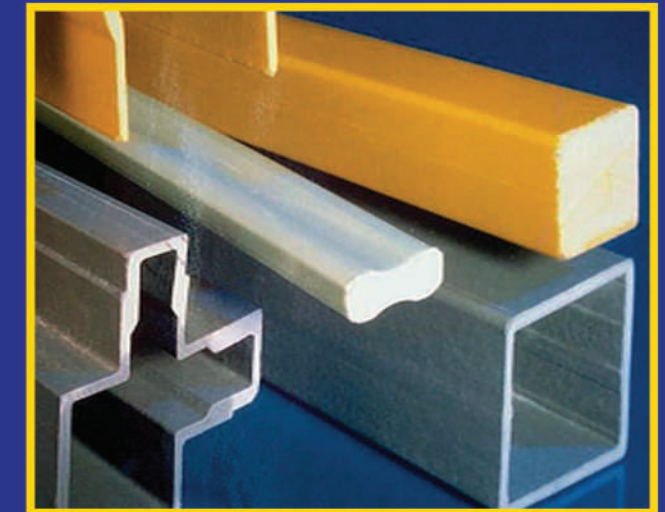


ORGANIZATIONAL CHART





- FRP/GRP (FIBERGLASS REINFORCED PLASTIC COMPOSITE PROFILES).
- FRP/GRP PULTRUDED GRATINGS & FRP/GRP MOLDED GRATING.
- FRP/GRP HANDRAILS.
- FRP/GRP LADDERS AND SAFETY CAGE.
- FRP/GRP CABLE TRAYS & LADDER COMPONENTS.
- FRP/GRP PLATFORMS & WALKWAYS.
- FRP/GRP COOLING TOWER COMPONENTS.
- FRP/GRP CORRUGATED SHEETS, FLAT SHEETS&CHECKERED PLATE SHEETS.
- FRP/GRP MARKER POST.



LIST OF PRODUCTS

FIBERGLASS GRATING SYSTEM



FEATURE BENEFITS AND CHARACTERISTICS

Chemical and Corrosion Resistance

The use of premium grade resins containing UV inhibitors and an outer reinforcing continuous strand mat topped by a non-glass surfacing tissue, optimum protection against corrosion and weathering can be achieved. It resists a wide range of aggressive acids, salts, alkalis and other chemical environments which can have disastrous effect on metallic grating systems.

High Strength to Weight Ratio

Superior strength to weight ratio to steel or aluminum systems. It is highly resistant to fatigue, creep or permanent deformation.

Lightweight and Manageable

The pultruded fiberglass used has a specific gravity of one fourth that of steel and two-thirds that of aluminum which considerably simplifies installation and handling.

Non-Conductive

Fiberglass can be used safely in electrical work areas. Special support conditions to prevent electrolytic corrosion is not required.

Transparent to Radio Frequency

Pultruded fiberglass does not interfere with electromagnetic and radio frequency transmissions. It can be safely applied in towers and other structures used in the transmission of such signals.

STANDARD POLYESTER (ISO) RESIN SYSTEM

The standard polyester resin system refers to a non flame retardant isophthalic polyester resin system.

This resin system is manufactured in olive green and incorporates ultraviolet inhibitors. Polyester resins exhibit good corrosion resistance, good electrical properties, low thermal conductivity and external mechanical properties.

Flame Retardant Polyester (ISOFR) Resin System.

This resin exhibits the same characteristics as the standard polyester resin system with a Flame spread rating of 25 or less when tested in accordance to ASTM E-84. The flame retardant resin is manufactured in gray and yellow.

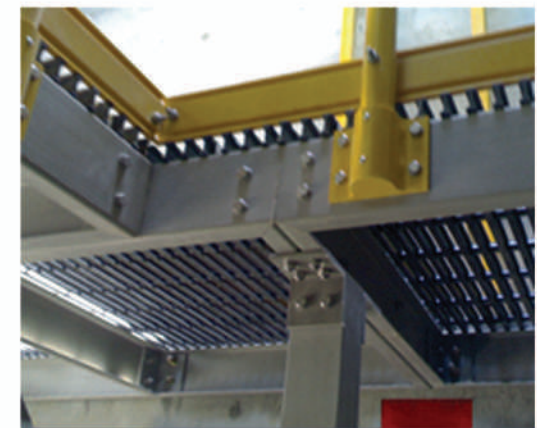
Flame Retardant Vinyl Ester (VEFR) Resin System.

This resin system is manufactured from vinyl ester resin which exhibit higher strength, improve strength and stiffness retention at elevated temperatures, and improved corrosion resistance. This system also meets a maximum Flame spread rating of 25 and produced in beige and yellow color.

All pultruded profiles used in grating system were made of premium grade ISOPHTHALIC polyester or vinyl ester resins and meet the fire retardancy requirements of UL94 V-0, ASTM D-635 and ASTM D-84. It contains nominally 60% E glass reinforcement.



FPR GRATING & SUPPORT @ VALVE & METERING CHAMBER



FPR SUPPORT SQUARE POST, ANGLE, BEAM AND CHANNEL

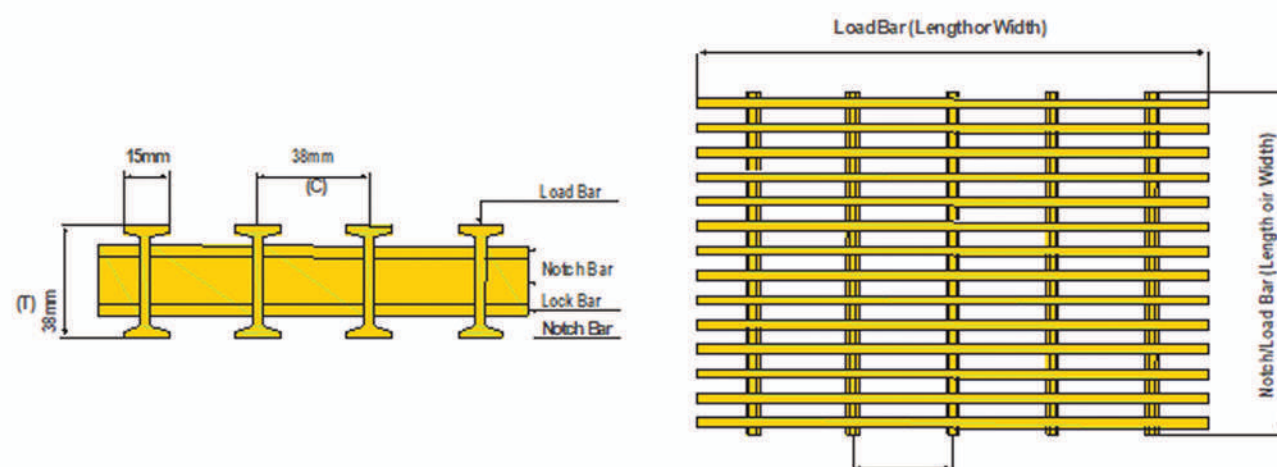


FPR FLOOR GRATING

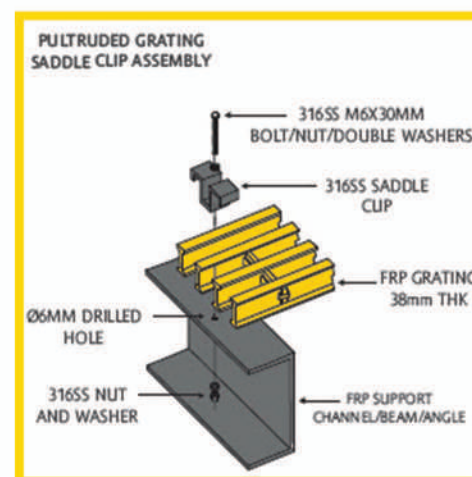


FRP GRATING TECHNICAL INFORMATION

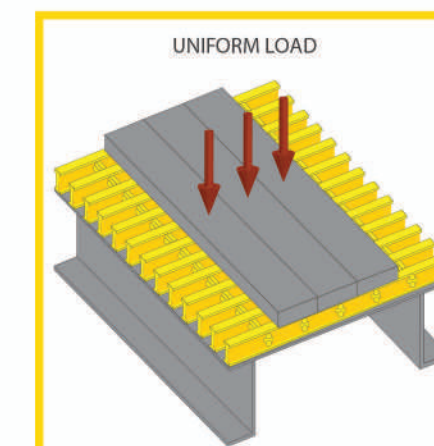
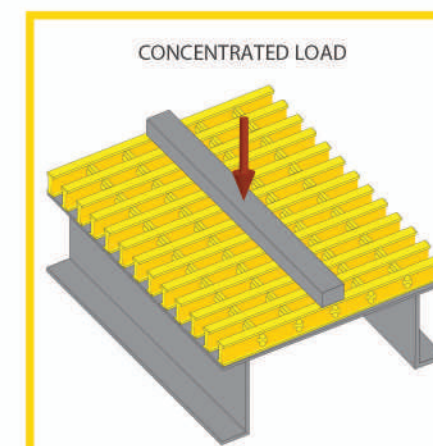
Standard panel size are nominal 914mm(36") or 1219mm(48") wide by 3048mm(120") span. Other sizes are available to order to a maximum of 1219mm (48") wide by 6096mm (240") spans. Panel weight must be considered when ordering large panels. Special shape panels can be cut from standard width stock panels. Standard and fire retardant grating is made in safety yellow. Vinyl ester system for additional chemical resistance are beige in color. Other color can be made to order.



Series	Type	Grating Thickness (T)		Cross Tie Center		Load Bars per 300mm of Width	Load Bar Center (C)		% Open Area	kg/m ²	lb/ft ²
		(mm)	(in)	(mm)	(in)		(mm)	(in)			
400	400	38	1.5	305	12	12	25	1	40	24	4.9
	409	38	1.5	228	9	12	25	1	40	24	4.9
	406	38	1.5	152	6	12	25	1	40	25	5.1
	403	38	1.5	76	3	12	25	1	40		5.7
600	600	38	1.5	305	12	8	38	1.5	60	17	3.5
	609	38	1.5	228	9	8	38	1.5	60	17	3.5
	606	38	1.5	152	6	8	38	1.5	60	18	3.7
	603	38	1.5	76	3	8	38	1.5	60	21	4.3



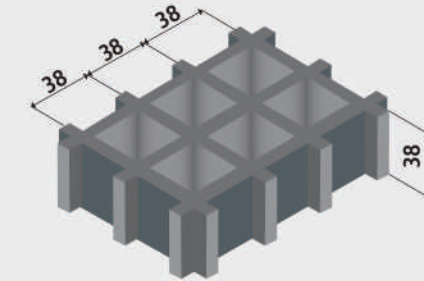
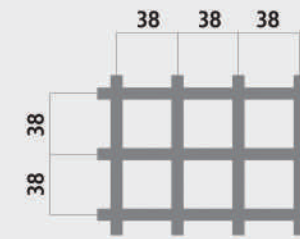
FRP GRATING LOAD DEFLECTION TABLE



SERIES 600		CONCENTRATED LOAD								8 Load bars/300mm of Width	
Span (mm)		KiloNewtons								Load for Deflection	
		0.5	1	2	3	5	7	10		6.4mm	9.5mm
		Deflection (mm)								KiloNewtons	
300	*	*	*		0.30	0.50	0.70	1.00		13.70+	20.30+
450	*		0.30	0.60	0.89	1.49	2.08	2.96		13.70+	20.30+
600	*		0.47	0.93	1.40	2.34	3.27	4.67		13.70	20.30
900	0.57	1.15	2.31	3.46	5.77	8.08	11.54			5.55	8.23
SERIES 600		UNIFORM LOAD								8 Load bars/300mm of Width	
Span (mm)		KiloNewtons								Load for Deflection	
		2	3	4	5	7	9	12		6.4mm	9.5mm
		Deflection (mm)								KiloNewtons	
300	*	*	*	*	*	*	*	*		119.25+	177.00+
450	*	*	*	*	*	*	*	*		119.25+	177.00+
600	*	*	*	*	0.27	0.38	0.48	0.64		119.25	177.00
900	0.40	0.59	0.79	0.99	1.39	1.78	2.38			32.32	47.98
SERIES 400		CONCENTRATED LOAD								12 Load bars/300mm of Width	
Span (mm)		KiloNewtons								Load for Deflection	
		0.5	1	2	3	5	7	10		6.4mm	9.5mm
		Deflection (mm)								KiloNewtons	
300	*	*	*	*	*	0.33	0.46	0.66		20.60+	30.50+
450	*	*	*	0.40	0.60	0.99	1.39	1.97		20.60+	30.50+
600	*		0.31	0.62	0.93	1.56	2.18	3.11		20.60	30.50
900	0.38	0.77	1.54	2.31	3.85	5.39	7.69			8.32	12.35
SERIES 400		UNIFORM LOAD								12 Load bars/300mm of Width	
Span (mm)		KiloNewtons								Load for Deflection	
		2	3	4	5	7	9	12		6.4mm	9.5mm
		Deflection (mm)								KiloNewtons	
300	*	*	*	*	*	*	*	*		180.00+	267.00+
450	*	*	*	*	*	*	*	*		180.00+	267.00+
600	*	*	*	*	*	*	0.32	0.43		180.00	267.00
900	0.26	0.40	0.53	0.66	0.92	1.19	1.58			48.50	72.00



FRP MOLDED GRATING LOAD DEFLECTION TABLE



H38 MESH SIZE
38MMx38MM

Bar Thickness (Top/Bottom)
7.0/5.0

Distance Between Centers
of Bearing Bar - 38mm

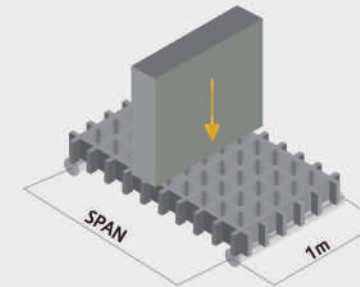
Open Area - 68%

Weight per Square Meter
19.5 kg/m²

Standard Panel Sizes:

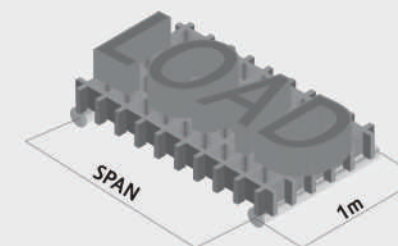
1220mm x 4000mm, 1220mm x 3660mm, 1220mm x 2440mm
915mm x 3050mm, 1524mm x 3050mm, 1254mm x 4000mm

FRP MOLDED GRATING



CONCENTRATED LINE LOAD TABLE
DEFLECTION IN mm

Deflection	kg/m						Break point
SPAN	75	150	300	450	600	750	
300	0.279	0.356	0.483	0.61	0.762	0.889	17116
600	0.356	0.66	1.245	1.85	2.464	3.073	8718
900	0.864	1.803	3.683	5.563	7.417	9.296	5817
1200	2.261	4.749	9.677	14.63	19.583	--	3755



UNIFORM LOAD TABLE DEFLECTION IN mm

Deflection	kg/m ²						
SPAN	240	480	980	1450	2450	3650	4880
300	0.254	0.305	0.381	0.457	0.7635	0.838	--
600	0.432	0.813	1.549	2.311	3.8354	5.74	--
900	1.702	3.454	6.959	10.465	17.475	--	--
1200	5.969	12.167	24.511	--	--	--	--

**FIBERGLASS
MOLDED
GRATING**



FEATURE BENEFITS AND CHARACTERISTICS

Chemical and Corrosion Resistance

The use of premium grade resins containing UV inhibitors and an outer reinforcing continuous strand mat topped by a non-glass surfacing tissue, optimum protection against corrosion and weathering can be achieved. It resists a wide range of aggressive acids, salts, alkalis and other chemical environments which can have disastrous effect on metallic grating systems.

High Strength to Weight Ratio

Superior strength to weight ratio to steel or aluminum systems. It is highly resistant to fatigue, creep or permanent deformation.

Lightweight and Manageable

The pultruded fiberglass used has a specific gravity of one-fourth that of steel and two-thirds that of aluminum which considerably simplifies installation and handling.

Non-Conductive

Fiberglass can be used safely in electrical work areas. Special support conditions to prevent electrolytic corrosion is not required.

Transparent to Radio Frequency

Pultruded fiberglass does not interfere with electromagnetic and radio frequency transmissions. It can be safely applied in towers and other structures used in the transmission of such signals.

STANDARD POLYESTER (ISO) RESIN SYSTEM

Standard Polyester (ISO) Resin System

The standard polyester resin system refers to a non flame retardant isophthalic polyester resin system. This resin system is manufactured in olive green and incorporates ultraviolet inhibitors. Polyester resins exhibit good corrosion resistance, good electrical properties, low thermal conductivity and excellent mechanical properties.

Flame Retardant Polyester (ISOFR) Resin System

This resin exhibits the same characteristics as the standard polyester resin system with a flame spread rating of 25 or less when tested in accordance to ASTM E-84. The flame retardant resin is manufactured in gray and yellow.

Flame Retardant Vinyl Ester (VEFR) Resin System

This resin system is manufactured from vinyl ester resin which exhibits higher strength, improved strength and stiffness retention at elevated temperatures, and improved corrosion resistance. This system also meets a maximum flame spread rating of 25 and is produced in beige and yellow color.

All pultruded profiles used in handrail system were made of premium grade ISOPHthalic polyester or vinyl ester resins and meet the fire retardancy requirements of UL94 V-0, ASTM D-635 and ASTM D-84. It contains nominally 60% E glass reinforcement.



FRP ROUND TUBE HANDRAIL @ SEWAGE TREATMENT PLANT



FRP ROUND TUBE HANDRAIL @ VALVE CHAMBER AREA



FRP SQUARE TUBE HANDRAIL FOR FRP STAIRCASE

FIBERGLASS HANDRAIL SYSTEM



FRP HANDRAIL TECHNICAL INFORMATION

1.0 LOADING REQUIREMENTS

1.1 SPI handrail system is designed to directly meet the specified loading requirements of the Occupational Safety and Health Administration (OSHA) federal register, volume 39, no. 125, section 1910.27, "Fixed Handrails" minimum live load requirement of a 200lb concentrated load at any point or uniform load of 75kg/m with a safety factor of 4.0.

1.2 Load/ deflection test are conducted at SPI own QC premises using the handrail horizontal & vertical deflection test.

2.0 HANDRAIL MATERIALS

2.1 SPI handrail system has 2 types the round handrail and square tube handrail.

- Round type handrail consist of 50x3.2mm round tube for top/ middle rail and post . Top and middle rails shall be connected using tee and cross connector. Kickrail shall be of 100x5mmthk and round tube using side or base plate connector.

- Square type handrail consist of 55x6mm square tube for post & rails. Top and middle rails shall be connected using 45x3mm connector. Kickrail shall be 100x5mm thk and mounted using side or base plate.

2.2 Type SS bolts/nuts/washers shall be provided for handrail assembly and fixation.

2.3 Laminates shall have no exposed glass, voids or dry glass. A synthetic surface veil as the outermost layer and UV inhibitor in the resin shall be presented to resist ultraviolet degradation.

3.0 HANDRAIL STANDARD TECHNICAL DATA

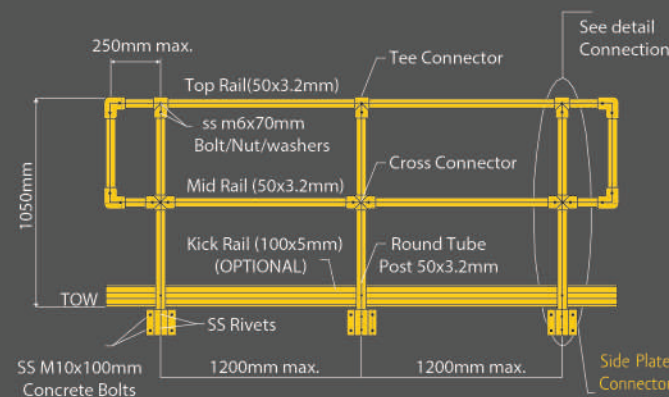
3.1 Vertical post spacing - 1200mm max.

3.2 Inclined post spacing - 1200mm max.

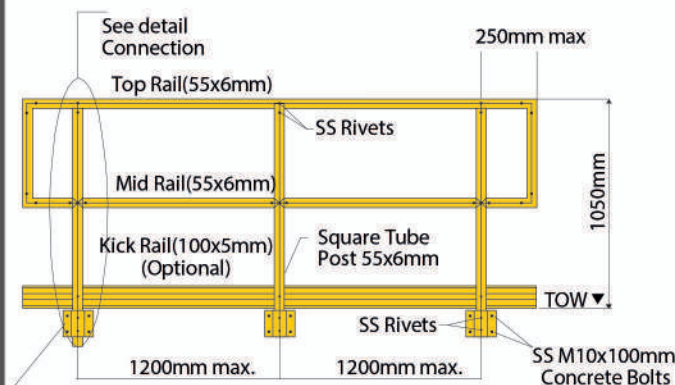
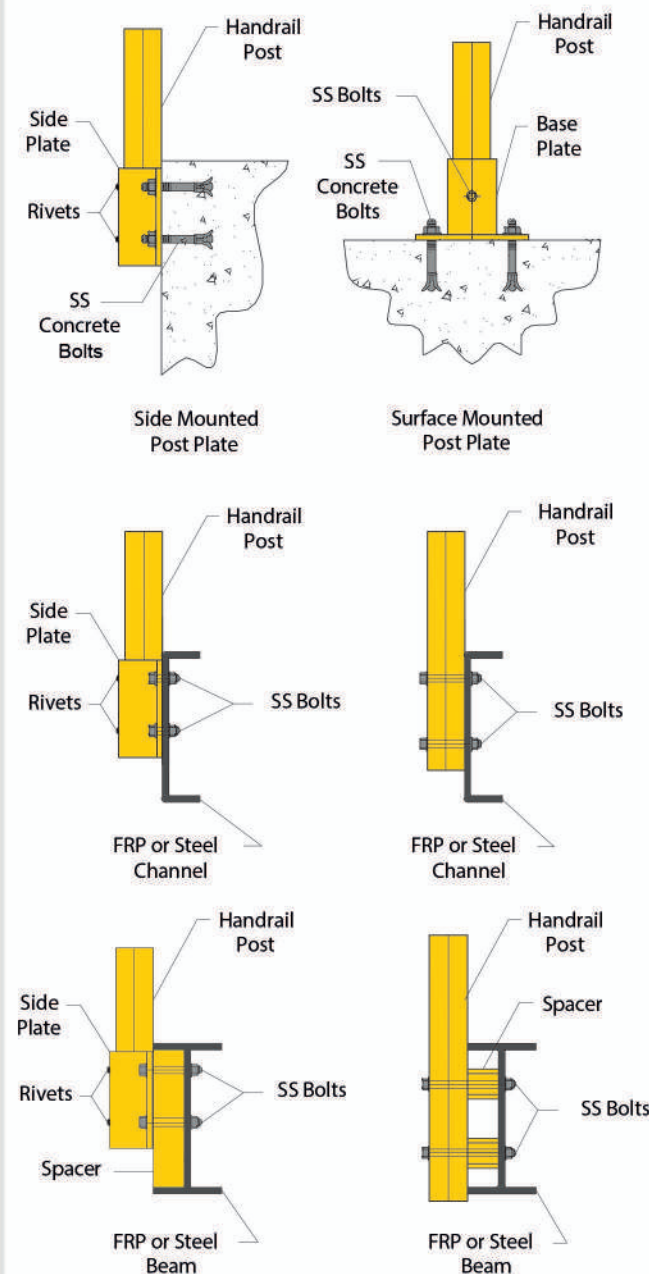
3.3 Post locations shall be no greater than 450mm nor less than 250mm from change in handrail direction.

3.4 Horizontal handrail height standard is 1050mm.

3.5 Inclined handrail height standard is 900mm.



TYPES OF POST INSTALLATION DETAILS

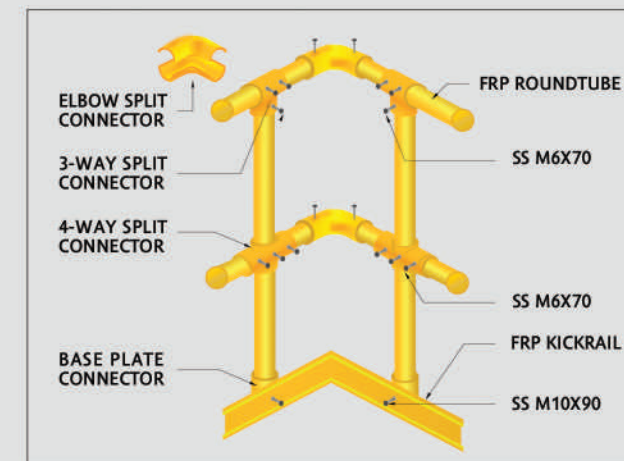
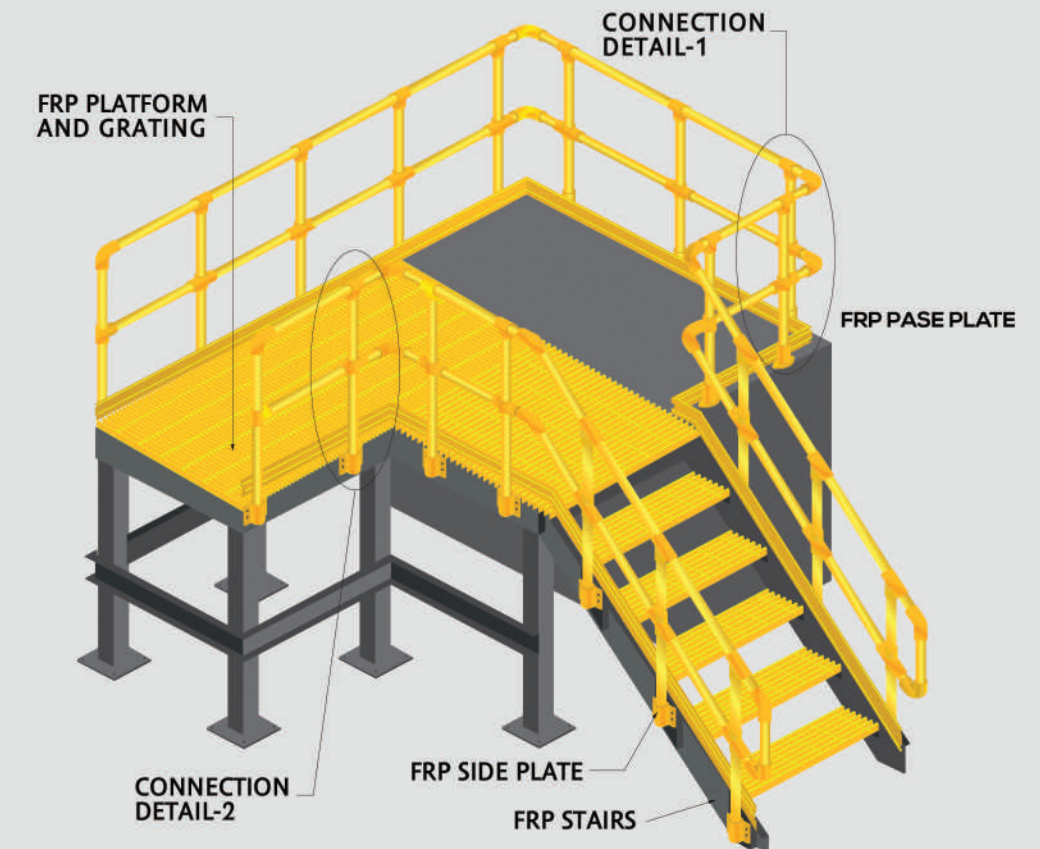


SQUARE TUBE INSTALLATION DETAILS

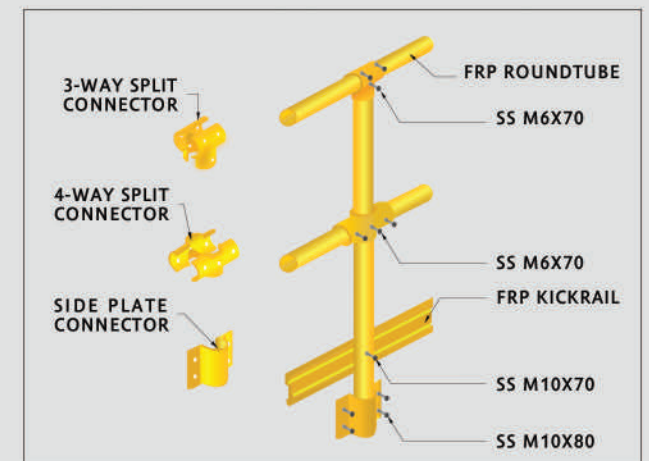


ROUND TUBE HANDRAIL INSTALLATION DETAILS

HANDRAIL DATA:
TUBE SIZE: Ø50mm 3mm THICKNESS



CONNECTION DETAIL-1



CONNECTION DETAIL-2



FIBERGLASS LADDER AND CAGE SYSTEM

FEATURE BENEFITS AND CHARACTERISTICS

Chemical and Corrosion Resistance

The use of premium grade resins containing UV inhibitors and an outer reinforcing continuous strand mat topped by a non-glass surfacing tissue, optimum protection against corrosion and weathering can be achieved. It resist a wide range of aggressive acids, salts, alkalis and other chemical environments which can have disastrous effect on metallic grating systems.

High Strength to Weight Ratio

Superior strength to weight ratio to steel or aluminum systems. It is highly resistance to fatigue, creep or permanent deformation.

Lightweight and Manageable

The pultruded fiberglass used has a specific gravity of one-fourth that of steel and two-thirds that of aluminum which considerably simplifies installation and handling.

Non-Conductive

Fiberglass can be used safely in electrical work areas. Special support conditions to prevent electrolytic corrosion is not required.

Transparent to Radio Frequency

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Flame Retardant Vinyl Ester (VEFR) Resin System

this resin system is manufactured from vinyl ester resin which exhibit higher strength, improve strength and stiffness retention at elevated temperatures, and improved corrosion resistance. this system also meets a maximum flame spread rating of 25 and produced in beige and yellow color.

All pultruded profiles used in ladder and safety cage were made of premium grade isophthalic polyester or vinyl ester resins and meet the fire retardancy requirements UL94 V-0, ASTM D-635 and ASTM D-84. It contain nominally of 60% E glass reinforcement.



FRP LADDER @ SEAWATER INTAKE VALVE



FRP LADDER WITH SAFETY CAGE @ HYPOCHLORITE BUILDING



FRP LADDER WITH SAFETY CAGE @ VALVE CHAMBER



FRP LADDER AND SAFETY CAGE TECHNICAL INFORMATION

1.0 LOADING REQUIREMENTS

1.1 SPI ladder system is designed to directly meet the specified loading requirements of the Occupational Safety and Health Administration (OSHA) federal register, volume 39, no. 125, section 1910.27, "Fixed Ladders" minimum live load requirement of a 200lb concentrated load at the mid-point of the rung with a safety factor of 4.0.

1.2 Load/ Deflection test are conducted at SPI own QC premises using the Ladder Rail Horizontal Beam deflection test.

2.0 LADDER ARRANGEMENT AND DIMENSION

2.1 SPI ladder system consist of ladder side post using square tube 45x6mm thickness and rails using rung tube diameter 32mmx3mm thickness continuously fluted to provide a non-slip surface. Rungs that are gritted as a secondary operation shall not be permitted. Ladder wall and floor mounting shall be fabricated in pultrusion system.

2.2 All rungs shall be both attached to the ladder with notch bar insertion and chemically bonded using formulated resin glue.

2.3 Ladder and Safety Cage component shall be in polyester or vinyl ester fire retardant resin formula in a safety yellow color.

2.4 Type SS bolts/nuts/washers shall be provided for attaching vertical bars to hoop, cage bracket to ladder, and wall bracket to ladder.

2.5 Cage hoops, cage brackets and vertical bars shall be manufactured by open mold hand lay-up process.

3.0 LADDER STANDARD TECHNICAL DATA

3.1 Outside width (outside rail to rail) - 540mm.

3.2 Inside width (inside rail to rail) - 450mm

3.3 Rung to rung center spacing - 300mm

3.4 Wall Bracket Spacing (center to center) -maximum 1500mm.

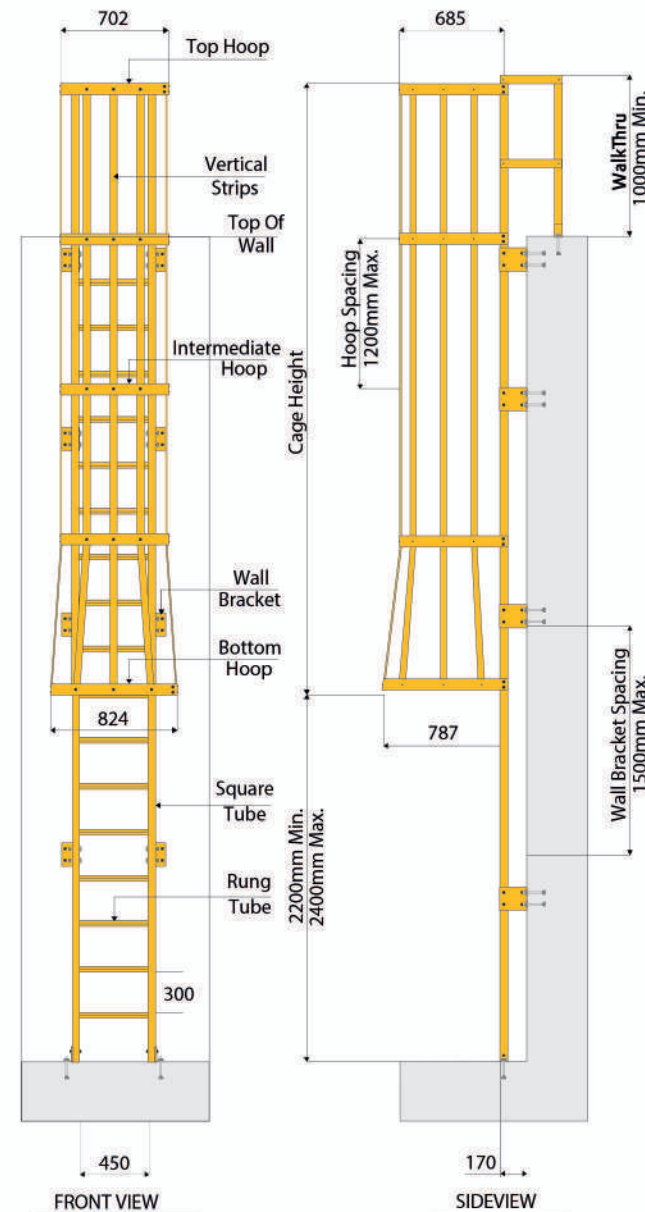
4.0 SAFETY CAGE STANDARD TECHNICAL DATA

4.1 Cage shall begin minimum of 2200mm to maximum 2400mm above base of ladder (floor).

4.2 Cage shall not be less than 685mm of width

4.3 Cage to extend minimum of 1000mm above top of landing.

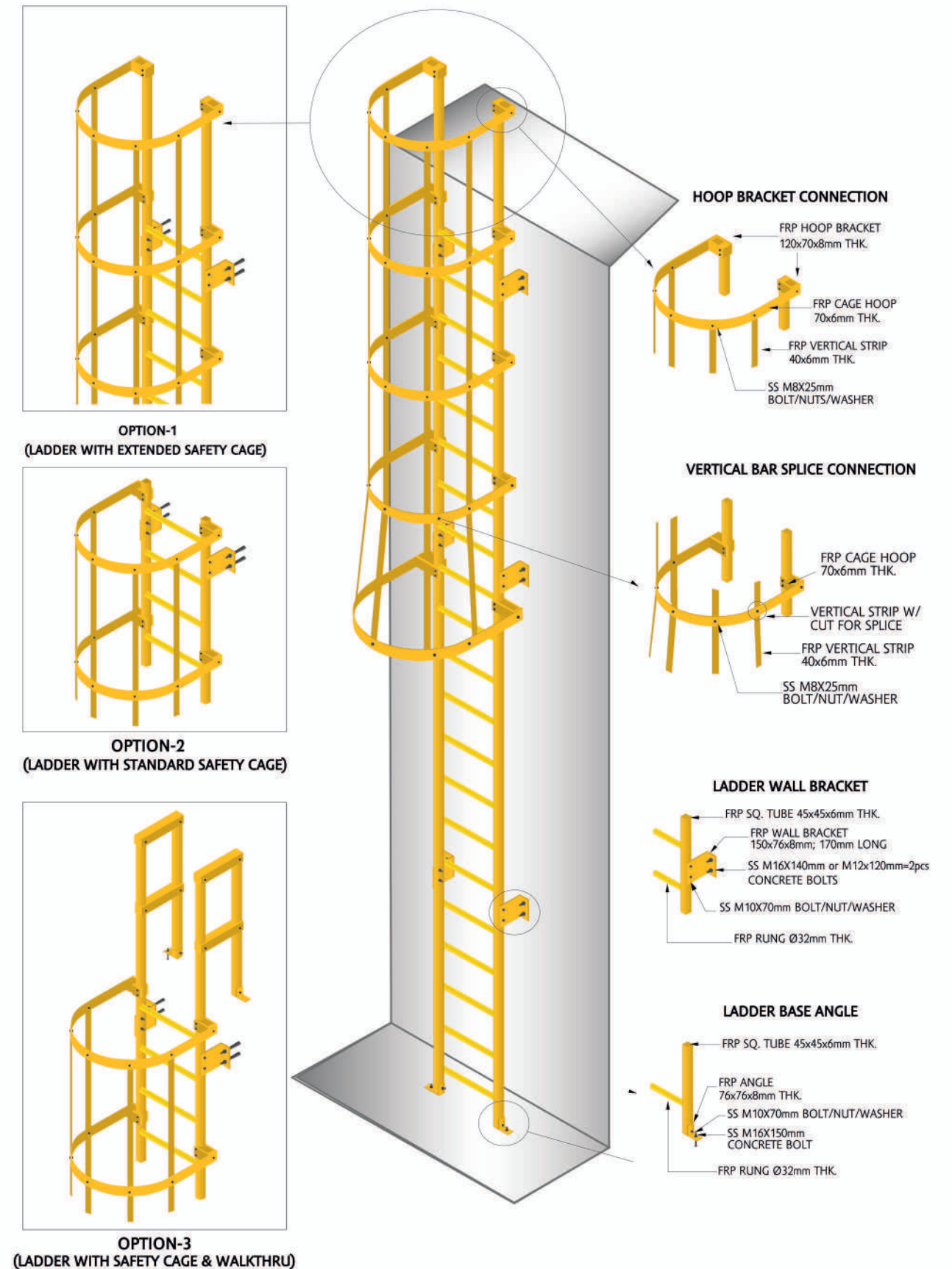
4.4 Cage hoop to hoop spacing (center to center) is maximum of 1200mm.



ITEMS	DESCRIPTION
Top Hoop	685mm from center line of rung to inside hoop 70mm wide x 6mm thickness
Intermediate Hoop	685mm from center line of rung to inside hoop 70mm wide x 6mm thickness
Bottom Hoop	787mm from center line of rung to inside hoop 70mm wide x 6mm thickness
Vertical Strips	40mm wide x 6mm thickness maximum spacing of 45° around cage
Wall Brackets	150mmx76mmx8mm thickness 170mm from wall to end rail

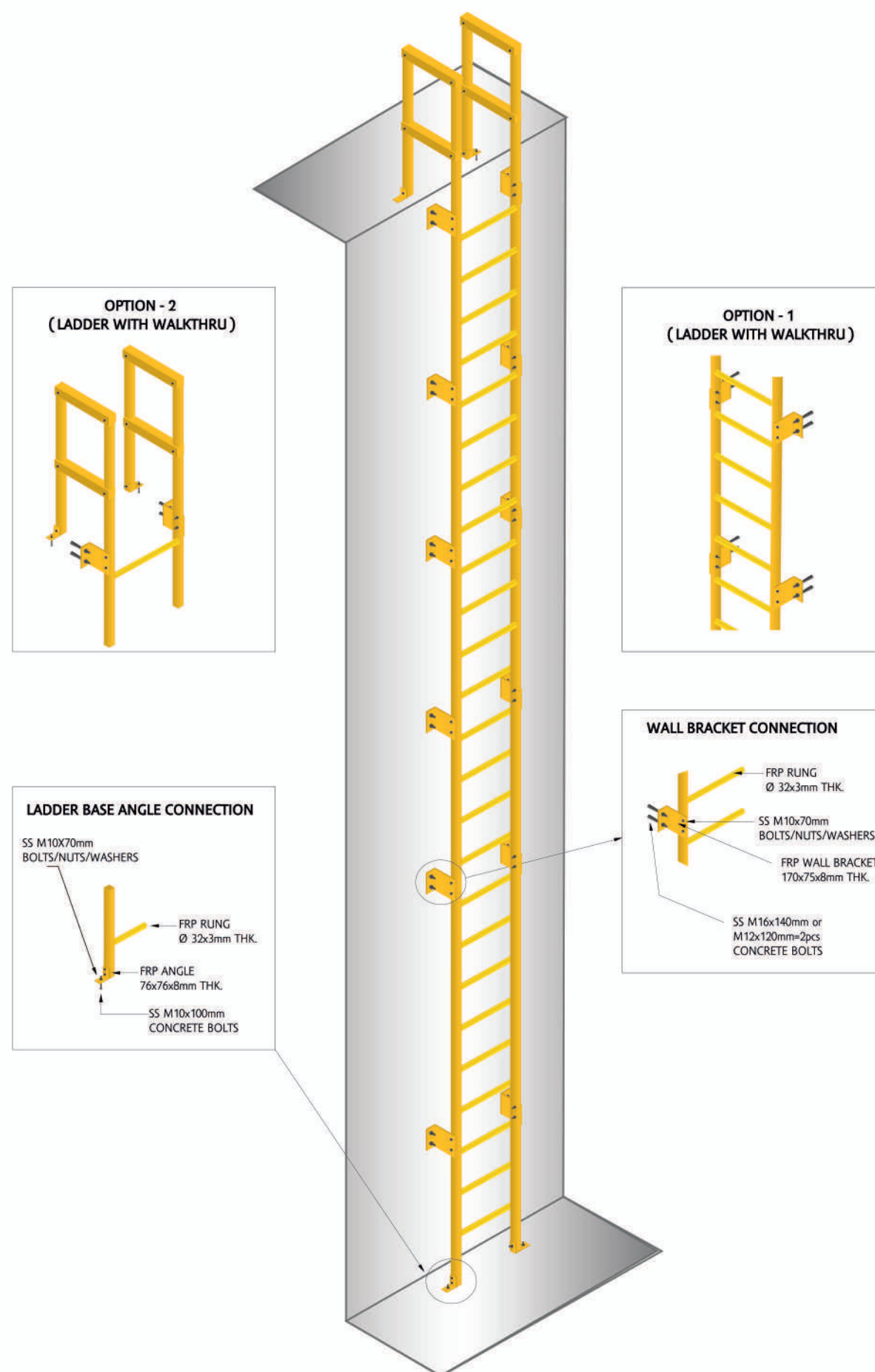


LADDER WITH SAFETY CAGE TYPICAL INSTALLATION DETAILS





LADDER TYPICAL INSTALLATION DETAILS



STANDARD RESIN SYSTEM FOR STRUCTURAL SHAPES

•STANDARD POLYESTER (ISO) RESIN SYSTEM

The standard polyester resin system refers to a NON FLAME RETARDANT Isophathalic polyester resin system. The resin system is manufactured in olive green and incorporates ultraviolet inhibitors. Polyester resins exhibit good corrosion resistance, good electrical properties, low thermal conductivity and excellent mechanical properties.

•FLAME RETARDANT POLYESTER (ISOFR) RESIN SYSTEM

this resin exhibits the same characteristics as the Standard Polyester resin system with a flame spread rating of 25 or less when tested in accordance to ASTM E-84. The FLAME RETARDANT resin is manufactured in gray and yellow.

•FLAME RETARDANT VINYL ESTER (VEFR) RESIN SYSTEM

This resin system is manufactured from vinyl ester resin which exhibits higher strength, improves strength and stiffness retention meets a maximum flame spread rating of 25 and produced in beige and yellow colour.

•ELEVATED TEMPERATURES EFFECTS

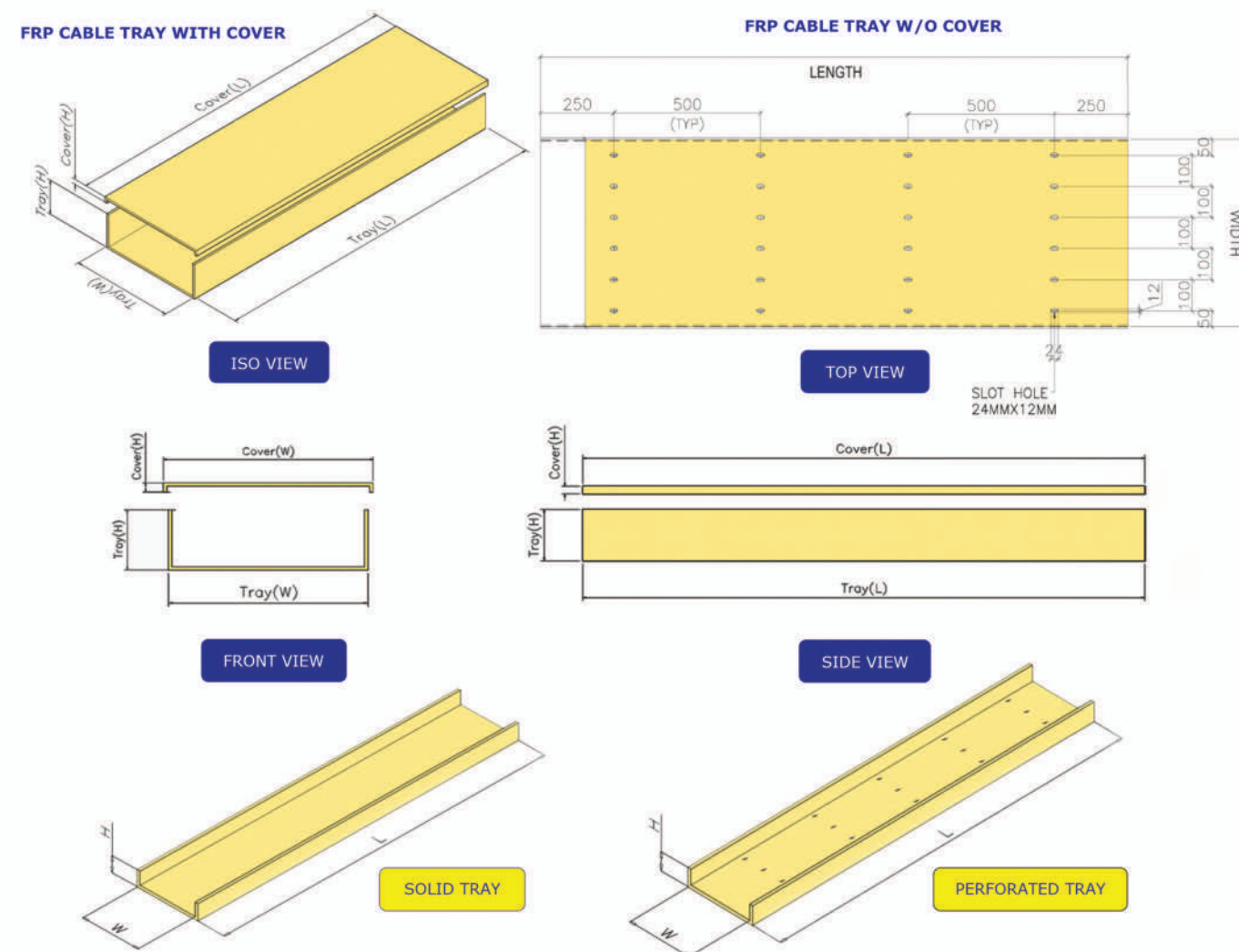
The approximate retention of mechanical properties at elevated temperature are:


	TEMPERATURE	ISO/ISOFR	VEFR
ULTIMATE STRESS	100 D	85 %	90 %
	125 D	70 %	80 %
	150 D	50 %	80 %
	175 D	Not Recommended	75 %
	200 D	Not Recommended	50 %

	TEMPERATURE	ISO/ISOFR	VEFR
MODULUS OF ELASTICITY	100 D	100 %	100 %
	125 D	90 %	95 %
	150 D	85 %	90 %
	175 D	Not Recommended	88 %
	200 D	Not Recommended	85 %



FRP PRODUCT SPECIFICATION AND ORDERING SYSTEM FOR FRP CABLE TRAY



FRP CABLE TRAY STRAIGHT SECTION PART				
ACCORDING TO NEMA FG1 SECTION 1993 REV.01				
EXAMPLE: VE - B - 100 - 100 - 3M				
				
RESIN	BOTTOM (B)	SIDE RAIL HEIGHT (H)	WIDTH (W)	LENGTH (L)
VE = VINYL ESTER	S = SOLID	100MM	100MM	3M
P = PERFORATED			200MM	6M
			300MM	
			400MM	
			600MM	

*Width represents inside dimensions

Please contact us for any other custom modifications.



FRP CABLE TRAY FITTINGS

FRP CABLE TRAY ORDER SYSTEM WITH SPECIFICATIONS.

The installation of Saudi Pultrusion Industries Cable Support Systems should be in accordance with the NEMA Standards Publication No. FG1-1993 Rev.01

FRP Cable Tray Fittings are available for all type widths, fittings are assembled using 316 SS Fasteners unless specified otherwise. When connecting to straight sections, expansion splice plates fastened are recommended.

FITTINGS PART NUMBERS			
EXAMPLE: HB - 60 - 300 - 300			
TYPE OF FITTINGS	ANGLE	WIDTH (W)	RADIUS (R)
HB = Horizontal Bend	30 = 30°	100 = 100mm	300 = 300mm
VI = Vertical Inside	45 = 45°	200 = 200mm	600 = 600mm
VO = Vertical Outside	60 = 60°	300 = 300mm	900 = 900mm
H3W = Horizontal Tee / 3-WAY	90 = 90°	400 = 400mm	
V3W = Vertical Tee / 3-WAY		600 = 600mm	
H4W = Horizontal Cross / 4-WAY			
RR = Right Hand Reducer			
LR = Left Hand Reducer			
SR = Straight Reducer			



* Tie Wraps are used for Vertical bends depending on the type of width.

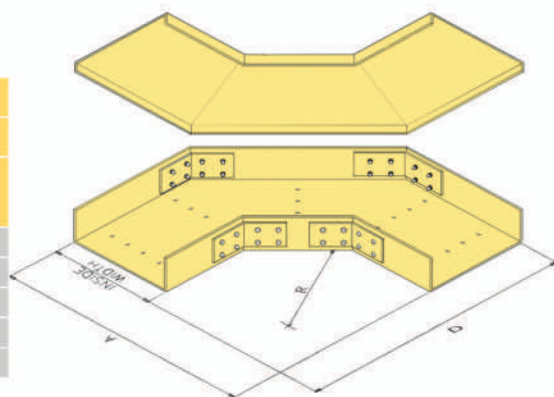


FRP CABLE TRAY FITTINGS

90° Horizontal Bend (HB)

Order Code:
Type-HB-Radius-Width-90
Example: HD-HB-600-300-90

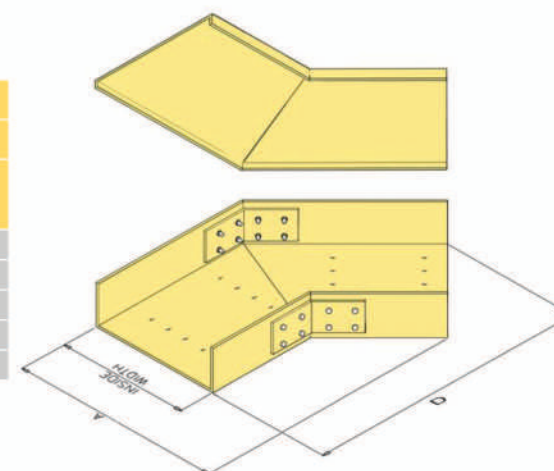
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
100	400	400	700	700	1000	1000	1300	1300
200	500	500	800	800	1100	1100	1400	1400
300	600	600	900	900	1200	1200	1500	1500
400	700	700	1000	1000	1300	1300	1600	1600
600	900	900	1200	1200	1500	1500	1800	1800



45° Horizontal Bend

Order Code:
Type-HB-Radius-Width-45
Example: HD-HB-600-300-45

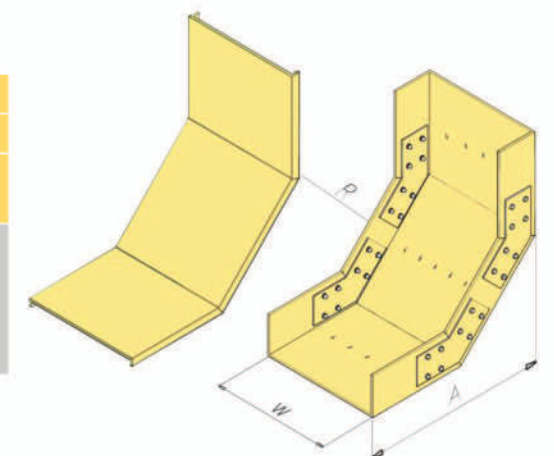
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
100	188	283	276	495	364	707	451	919
200	288	354	376	566	464	778	551	990
300	388	424	476	636	564	849	651	1061
400	488	495	576	707	664	919	751	1131
600	688	636	776	849	864	1061	951	1273



90° Vertical Inside Bend

Order Code:
Type-VI-Radius-Width-90
Example: HD-VI-600-300-90

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)
100								
200								
300	400	400	700	700	1000	1000	1300	1300
400								
600								

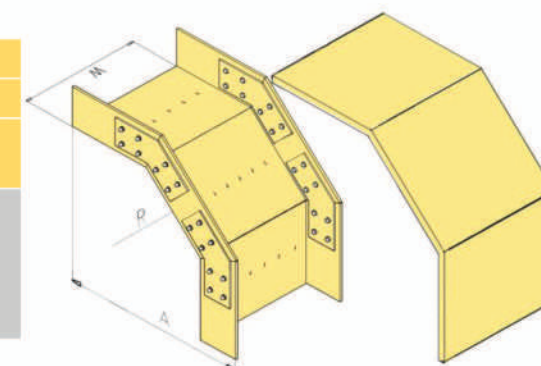


FRP CABLE TRAY FITTINGS

90° Vertical Outside Bend

Order Code:
Type-VO-Radius-Width-90
Example: HD-VO-600-300-90

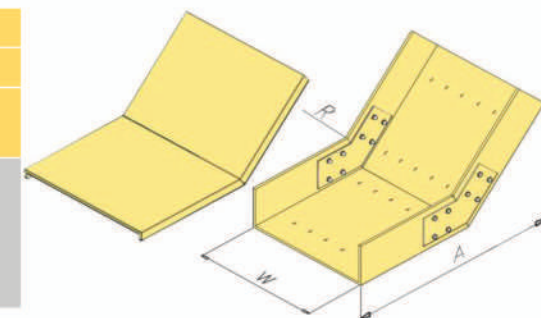
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)
100								
200								
300	400	400	700	700	1000	1000	1300	1300
400								
600								



45° Vertical Inside Bend

Order Code:
Type-VI-Radius-Width-45
Example: HD-VI-600-300-45

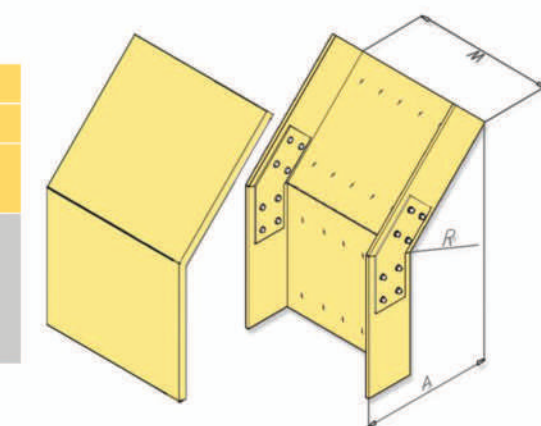
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
100								
200								
300	188	283	276	495	364	707	451	919
400								
600								



45° Vertical Outside Bend

Order Code:
Type-VO-Radius-Width-45
Example: MD-VO-600-300-45

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)
100								
200								
300	188	283	276	495	364	707	451	919
400								
600								



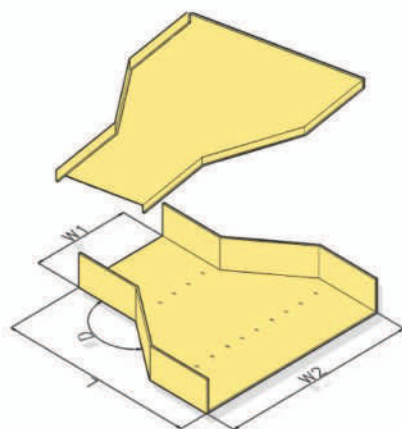


FRP CABLE TRAY FITTINGS

Straight Reducer (SR)

Order Code:
Type-SR-W1-W2
Example: HD-SR-600-300

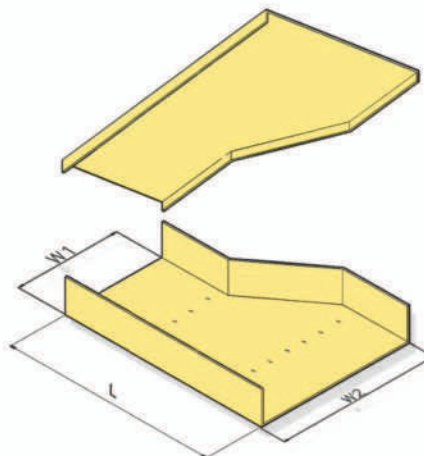
W2 (mm)	W1 (mm)			
	900	600	400	300
100	1040	890	1040	890
200	890	1040	890	
300	890	1040	890	
400	890	890		
600	1040			



Right or Left Hand Reducer (RR or LR)

Order Code:
Type-Hand-W1-W2
Example: HD-RR-600-300

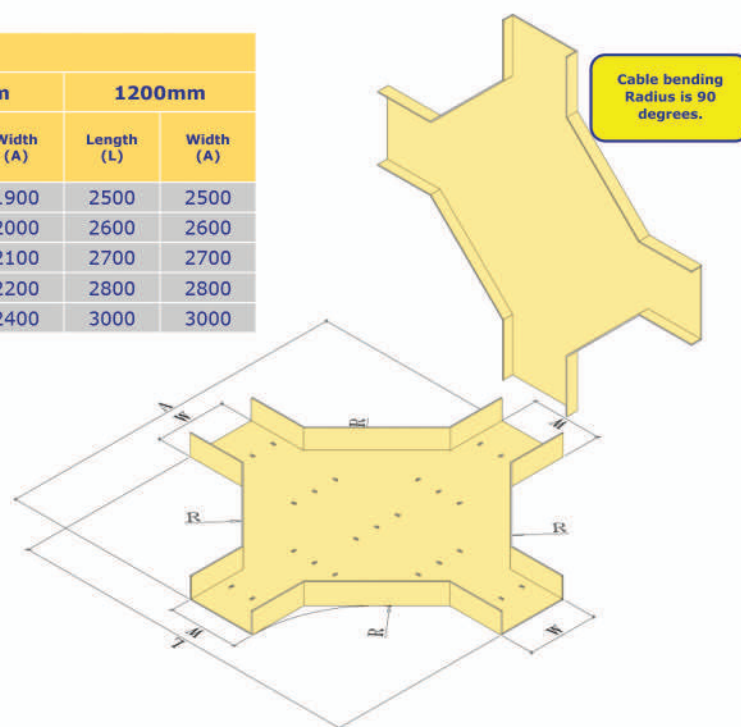
W2 (mm)	W1 (mm)			
	900	600	400	300
100	1340	1040	890	740
200	1240	940	820	
300	1190	890	740	
400	1040	740		
600	890			



Horizontal Cross 4-way

Order Code:
Type-H4W-R-W
Example: HD-H4W-300-600

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)
100	700	700	1300	1300	1900	1900	2500	2500
200	800	800	1400	1400	2000	2000	2600	2600
300	900	900	1500	1500	2100	2100	2700	2700
400	1000	1000	1600	1600	2200	2200	2800	2800
600	1200	1200	1800	1800	2400	2400	3000	3000

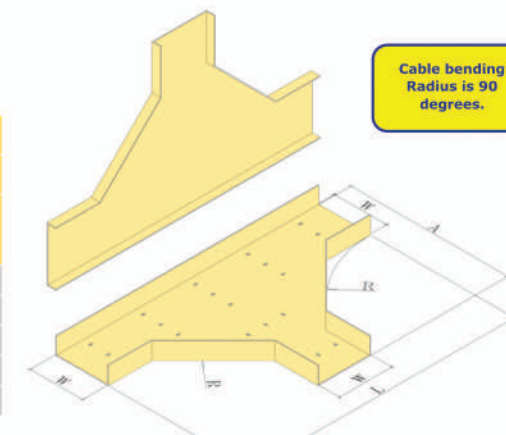


FRP CABLE TRAY FITTINGS

Horizontal Tee 3-way

Order Code:
Type-H3W-R-W
Example: HD-H3W-300-600

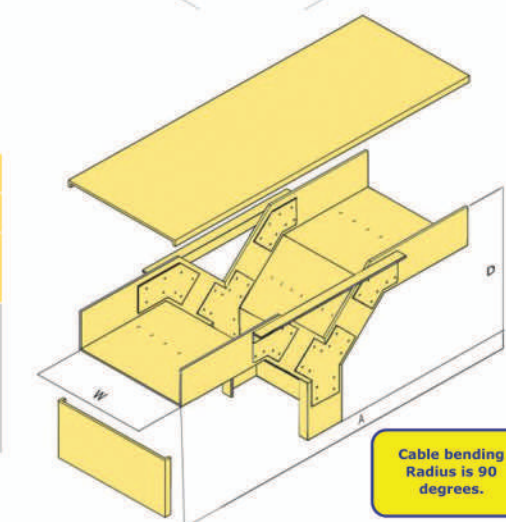
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)	Length (L)	Width (A)
100	700	400	1300	700	1900	1000	2500	1300
200	800	500	1400	800	2000	1100	2600	1400
300	900	600	1500	900	2100	1200	2700	1500
400	1000	700	1600	1000	2200	1300	2800	1600
600	1200	900	1800	1200	2400	1500	3000	1800



Vertical Tee Inside 3-way

Order Code:
Type-VI3W-R-W
Example: HD-VI3W-300-600

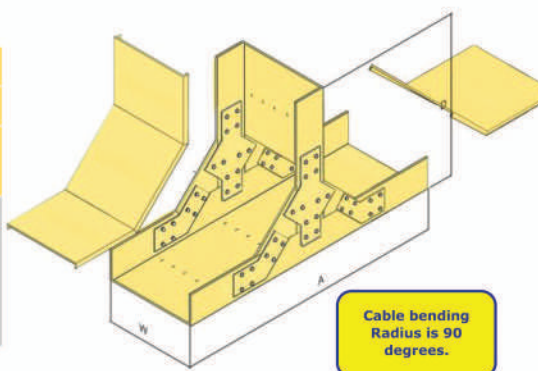
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
100								
200								
300	700	400	1300	700	1900	1000	2500	1300
400								
600								



Vertical Tee Outside 3-way

Order Code:
Type-VO3W-R-W
Example: HD-VO3W-300-600

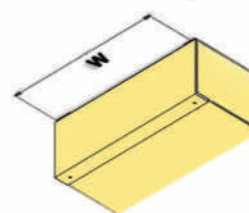
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
100								
200								
300	700	400	1300	700	1900	1000	2500	1300
400								
600								



Blind End

Order Code: MD-BE-W

Blind End to be fastened using SS316 M6X30 Bolt/Nut/Washers

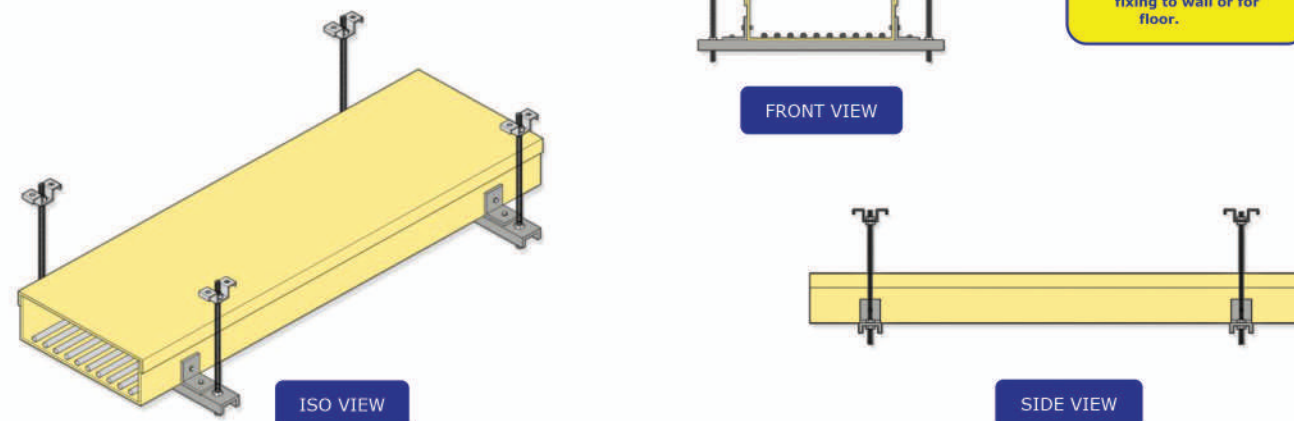




FRP CABLE TRAY SUPPORTS

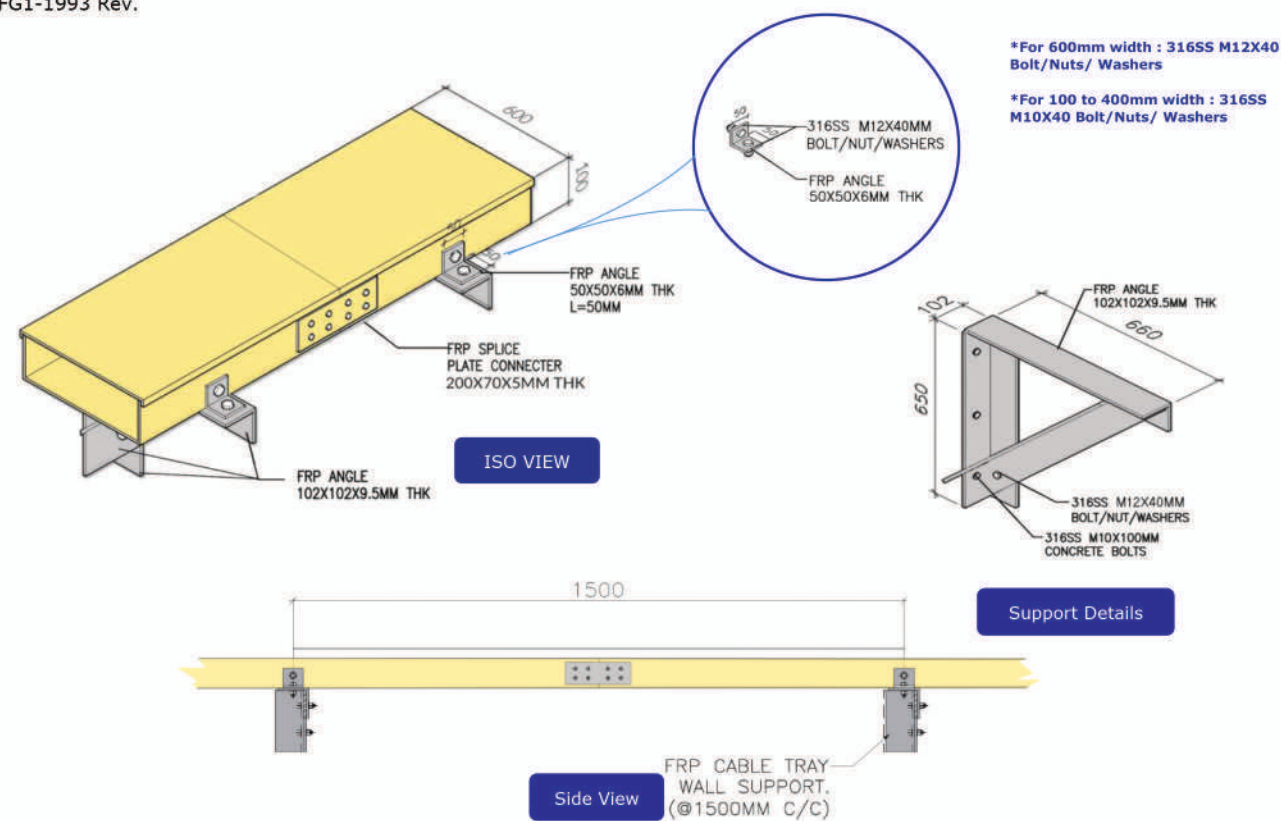
Support Brackets (SB)

Order Code:
Type-SB-W-H
Example: HD-SB-300-300



FRP Cable Tray with Wall Support

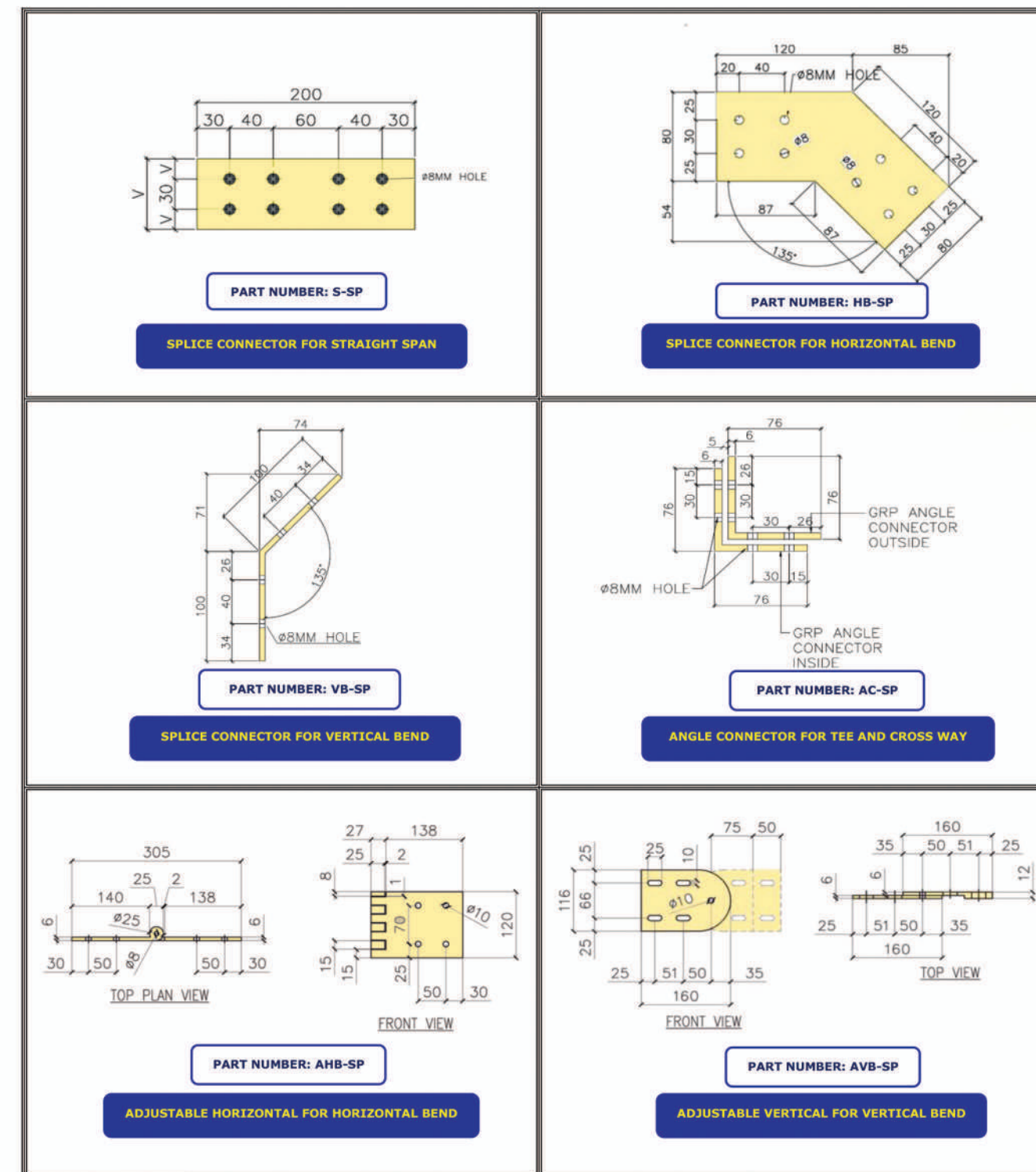
FRP Cable Tray 600mm width Heavy Duty with Cover and with FRP Support in accordance with the NEMA Standards Publication No. FG1-1993 Rev.



FRP CABLE LADDER AND TRAY ACCESSORIES

Splice plates for Cable Ladder are, for medium duty cable ladder, splice plates are 55mm wide for heavy and extra heavy duty cable ladder the splice plates are 100mm wide. Splice plates for cable tray up to 150mm in width are 40mm and for 200mm in width are 55mm.

Note: Thickness for FRP Splice Plate is 5mm thick.

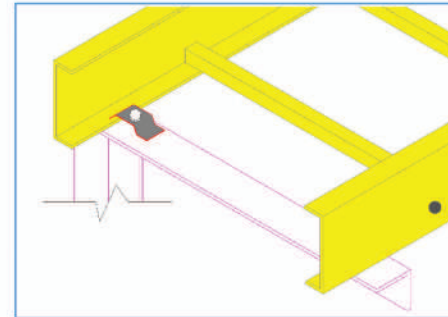




FRP CABLE LADDER AND TRAY ACCESSORIES

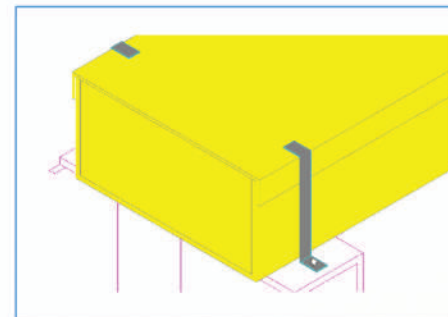
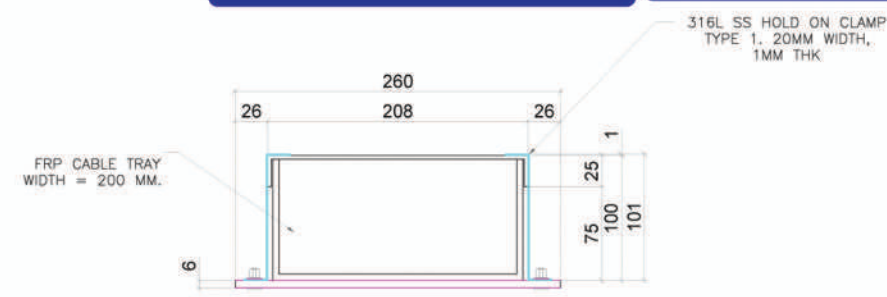
SS 316L HOLD ON CLIPS

PART NUMBER: SS-HOC



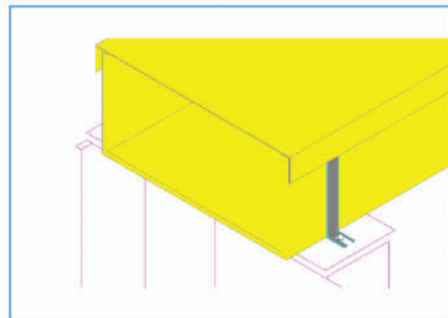
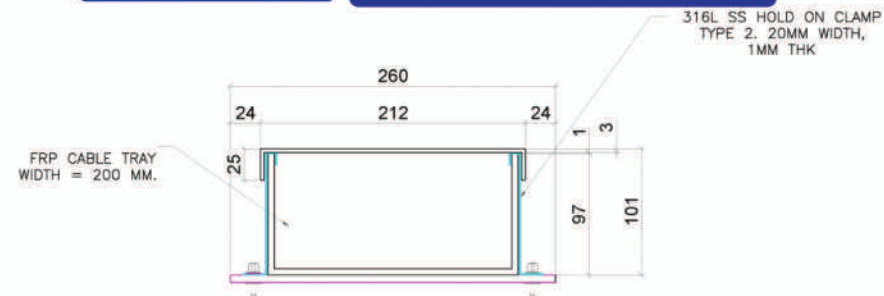
CLIP TYPE 1

PART NUMBER: SS-CT1-HOC



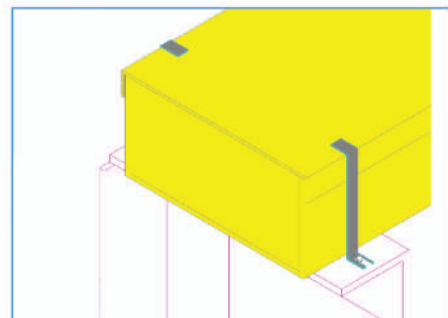
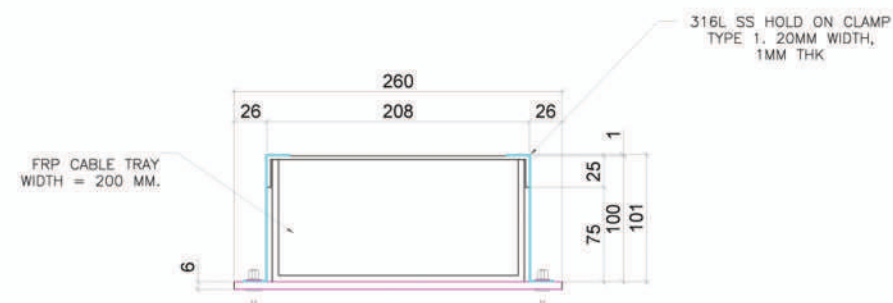
PART NUMBER: SS-CT2-HOC

CLIP TYPE 2



PART NUMBER: SS-CT3-HOC

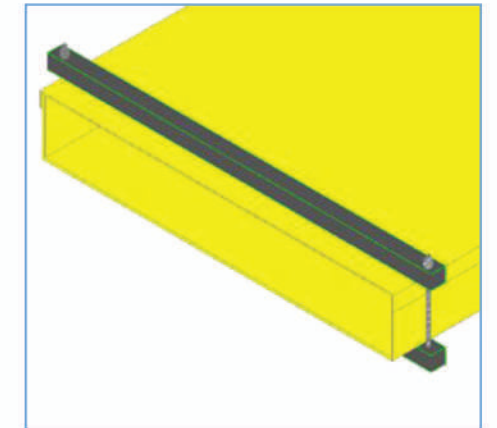
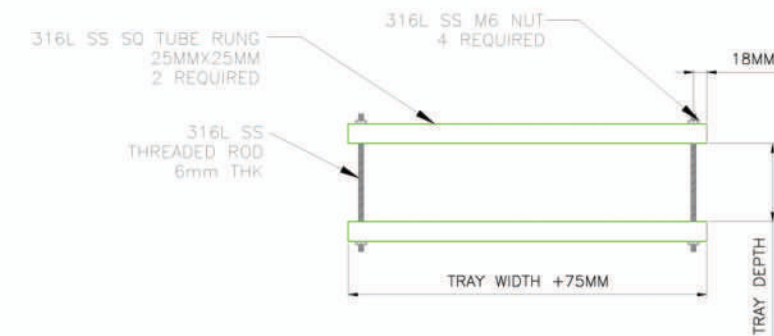
CLIP TYPE 3



FRP CABLE LADDER AND TRAY ACCESSORIES

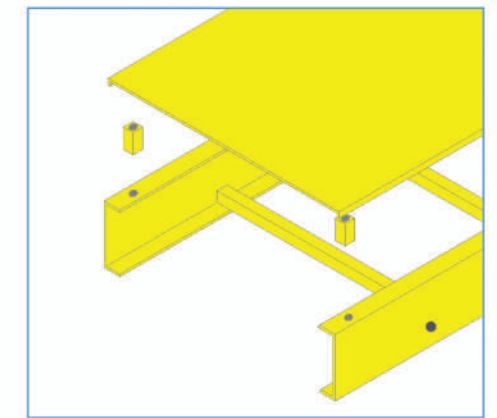
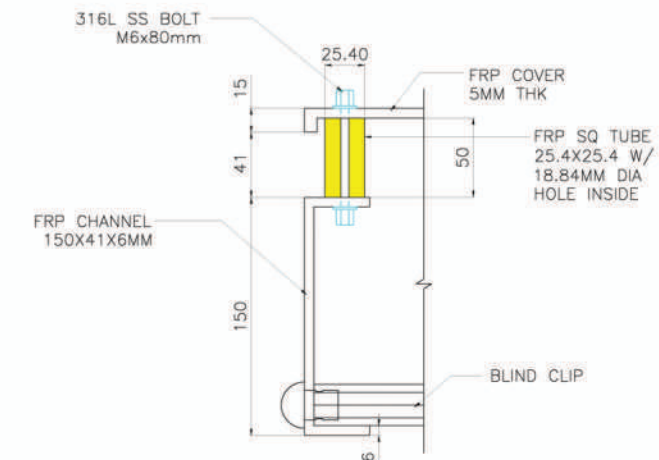
FRP COMPLETE COVER HOLD DOWN

PART NUMBER: CCHD-(H)-(W)



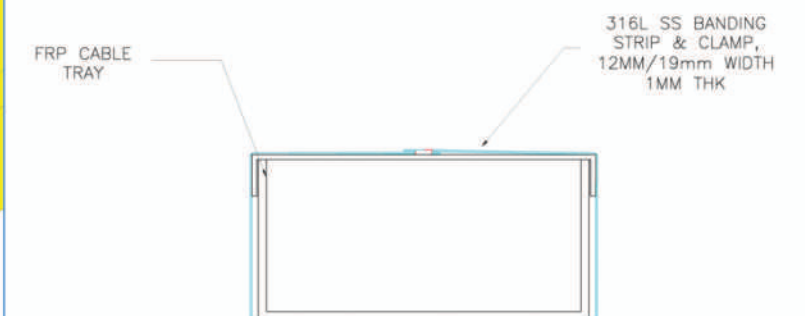
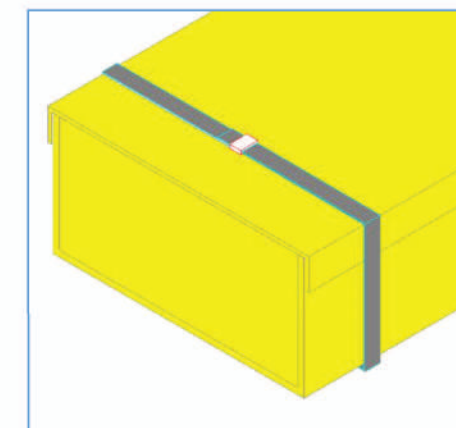
FRP STAND-OFF

PART NUMBER: ESO



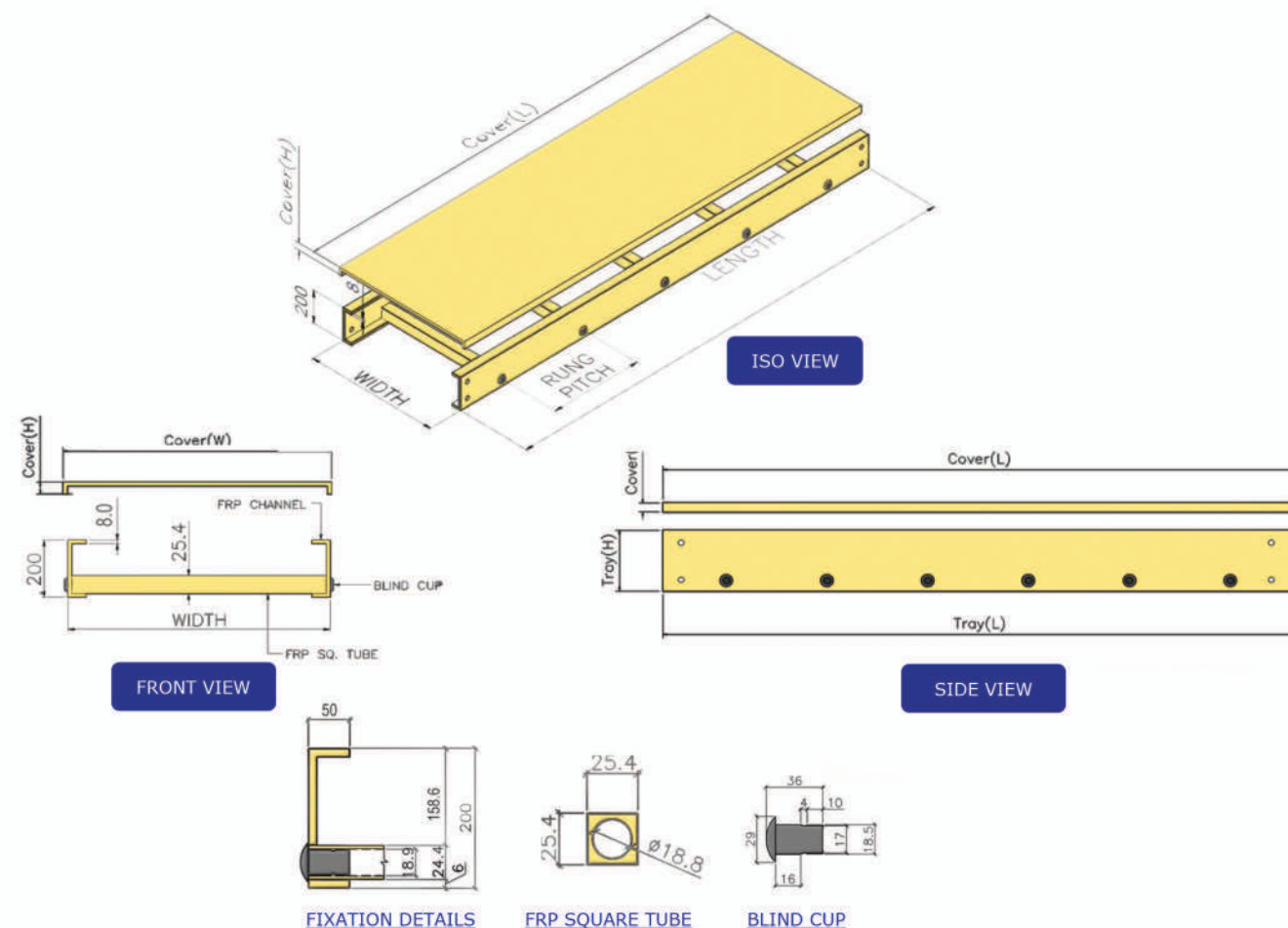
SS BANDING STRIP W/ CLAMPS

PART NUMBER: SS-BS





FRP PRODUCT SPECIFICATION AND ORDERING SYSTEM FOR FRP CABLE LADDER



FRP CABLE LADDER STRAIGHT SECTION PART				
ACCORDING TO NEMA FG1 SECTION 1993 REV.01				
EXAMPLE: HD200 - 300 - 150 - 3M				
SYSTEM NO.	SIDE RAIL HEIGHT	RUNG SPACING	WIDTH (W)	LENGTH (L)
HEAVY DUTY	200mm	300mm	150mm	3M
		229mm	300MM	6M
			400MM	
			600MM	
			900MM	

*Width represents inside dimensions

Rung Connection are made of Blind Cup locking from both sides, see above fixation details. Please contact us for any other custom modifications.



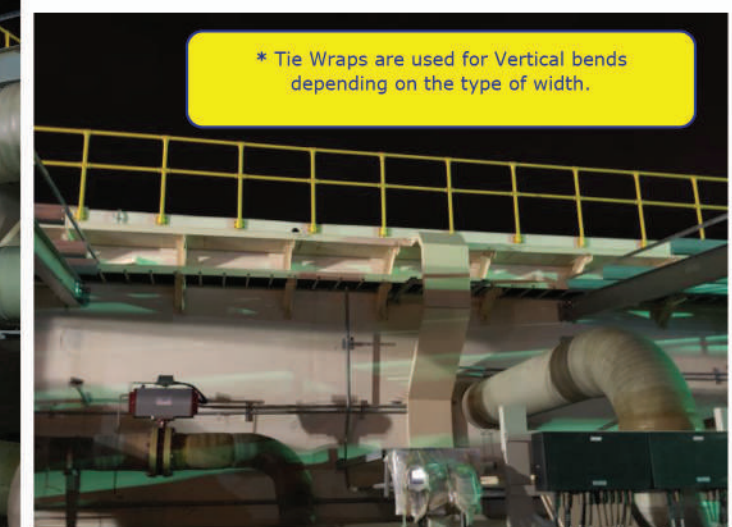
FRP CABLE LADDER FITTINGS

FRP CABLE LADDER ORDER SYSTEM WITH SPECIFICATIONS.

The installation of Saudi Pultrusion Industries Cable Support Systems should be in accordance with the NEMA Standards Publication No. FG1-1993 Rev.01

FRP Cable Ladder Fittings are available for all type widths, fittings are assembled using 316 SS Fasteners unless specified otherwise. When connecting to straight sections, expansion splice plates fastened are recommended. Rung connections are made with a mechanical or chemical lock.

FITTINGS PART NUMBERS				
EXAMPLE: HD - HB - 600 - 300 - 90				
TYPE OF Cable Ladder	TYPE OF FITTINGS	ANGLE	WIDTH (W)	RADIUS (R)
HD = Heavy Duty	HB = Horizontal Bend	30 = 30°	150 = 150mm	300 = 300mm
	VI = Vertical Inside	45 = 45°	300 = 300mm	600 = 600mm
	VO = Vertical Outside	60 = 60°	400 = 400mm	900 = 900mm
	H3W = Horizontal Tee / 3-WAY	90 = 90°	600 = 600mm	1200 = 1200mm
	VI3W = Vertical Inside Tee / 3-WAY		900 = 900mm	
	VO3W = Vertical Outside Tee / 3-WAY			
	H4W = Horizontal Cross / 4-WAY			
	RR = Right Hand Reducer			
	LR = Left Hand Reducer			
	SR = Straight Reducer			



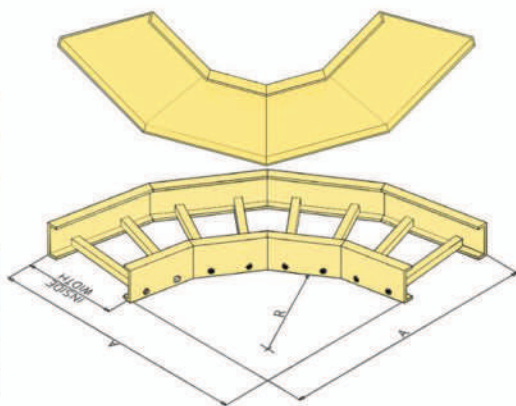


FRP CABLE LADDER FITTINGS

90° Horizontal Bend (HB)

Order Code:
Type-HB-Radius-Width-90
Example: HD-HB-600-300-90

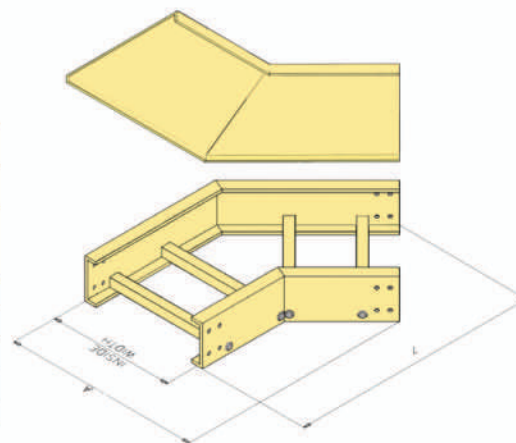
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150	450	450	750	750	1050	1050	1350	1350
300	600	600	900	900	1200	1200	1500	1500
400	700	700	1000	1000	1300	1300	1600	1600
600	900	900	1200	1200	1500	1500	1800	1800
900	1200	1200	1500	1500	1800	1800	2100	2100



45° Horizontal Bend

Order Code:
Type-HB-Radius-Width-45
Example: HD-HB-600-300-45

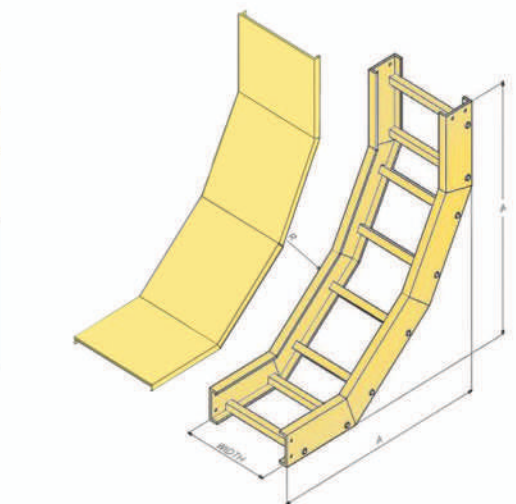
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150	238	333	326	545	414	757	501	969
300	388	424	476	636	564	849	651	1061
400	488	495	576	707	664	919	751	1131
600	688	636	776	849	864	1061	951	1273
900	988	849	1076	1062	1164	1274	1251	1486



90° Vertical Inside Bend

Order Code:
Type-VI-Radius-Width-90
Example: HD-VI-600-300-90

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150								
300								
400	500	500	800	800	1100	1100	1400	1400
600								
900								

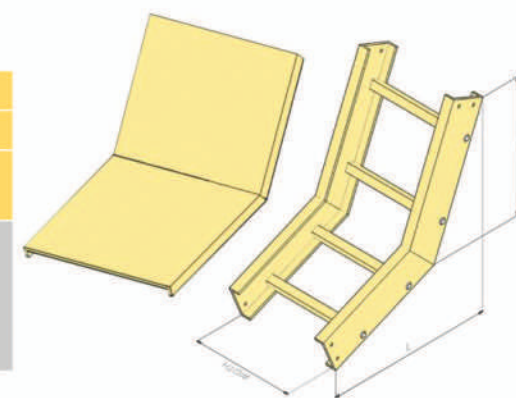


FRP CABLE LADDER FITTINGS

45° Vertical Inside Bend

Order Code:
Type-VI-Radius-Width-45
Example: HD-VI-600-300-45

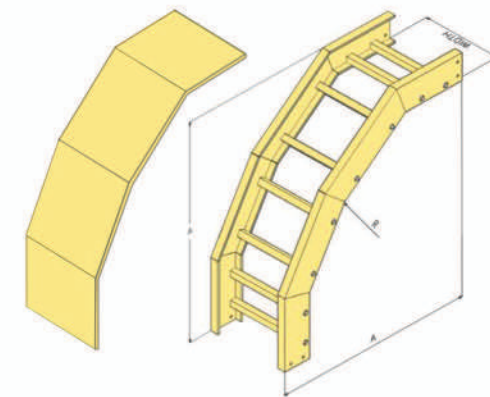
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150								
300								
400	288	354	376	566	464	778	551	990
600								
900								



90° Vertical Outside Bend

Order Code:
Type-VO-Radius-Width-90
Example: HD-VO-600-300-90

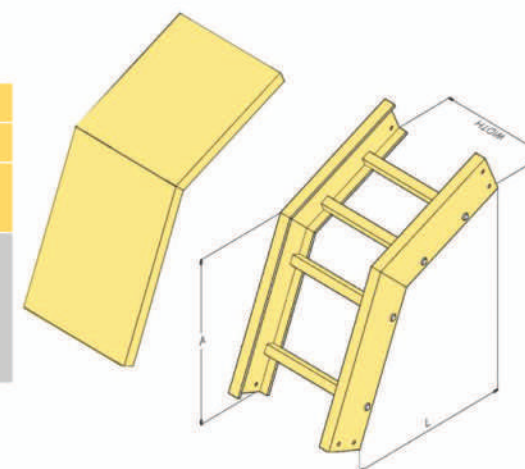
Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150								
300								
400	500	500	800	800	1100	1100	1400	1400
600								
900								



45° Vertical Outside Bend

Order Code:
Type-VO-Radius-Width-45
Example: MD-VO-600-300-45

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150								
300								
400	288	354	376	566	464	778	551	990
600								
900								



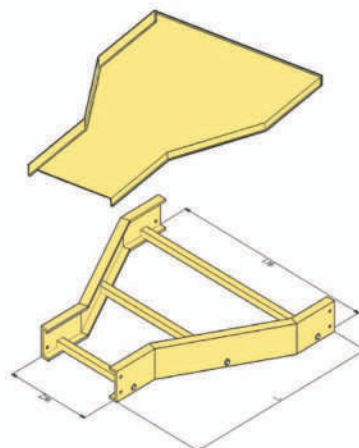


FRP CABLE LADDER FITTINGS

Straight Reducer (SR)

Order Code:
Type-SR-W1-W2
Example: HD-SR-600-300

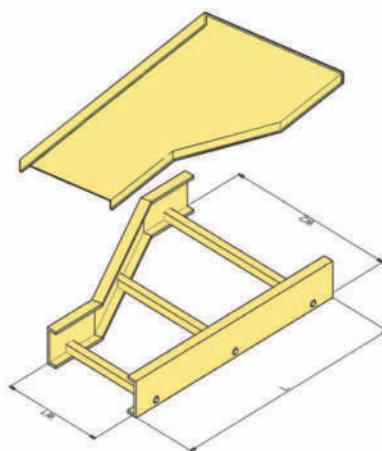
W2 (mm)	W1 (mm)			
	900	600	400	300
150	1040	890	1040	890
300	890	1040	890	
400	890	890		
600	1040			



Right or Left Hand Reducer (RR or LR)

Order Code:
Type-Hand-W1-W2
Example: HD-RR-600-300

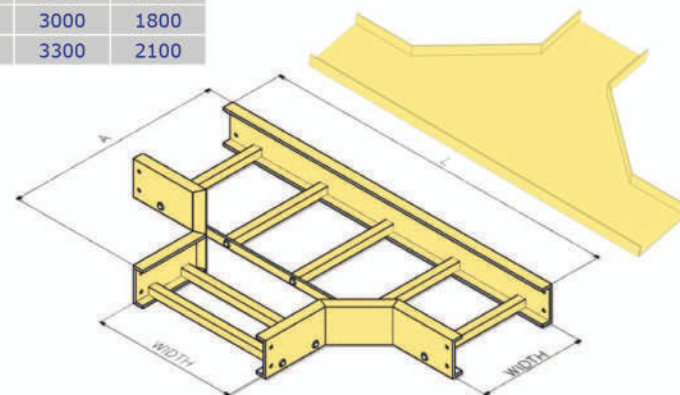
W2 (mm)	W1 (mm)			
	900	600	400	300
150	1290	990	870	
300	1190	890	740	
400	1040	740		
600	890			



Horizontal Tee 3-way

Order Code:
Type-H3W-R-W
Example: HD-3W-300-600

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150	750	450	1350	750	1950	1050	2550	1350
300	900	600	1500	900	2100	1200	2700	1500
400	1000	700	1600	1000	2200	1300	2800	1600
600	1200	900	1800	1200	2400	1500	3000	1800
900	1500	1200	2100	1500	2700	1800	3300	2100



Cable bending
Radius is 90
degrees.

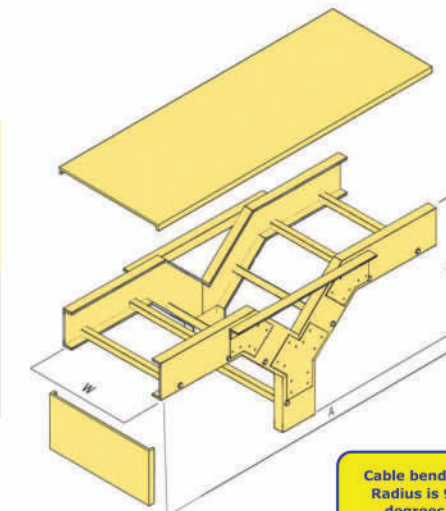


FRP CABLE LADDER FITTINGS

Vertical Inside Tee 3-way

Order Code:
Type-VI3W-R-W
Example: HD-VI3W-300-600

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150								
300								
400	800	500	1400	800	2000	1100	2600	1400
600								
900								

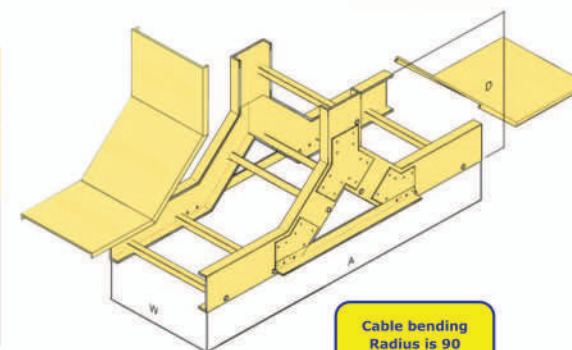


Cable bending
Radius is 90
degrees.

Vertical Outside Tee 3-way

Order Code:
Type-VO3W-R-W
Example: HD-VO3W-300-600

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150								
300								
400	800	500	1400	800	2000	1100	2600	1400
600								
900								

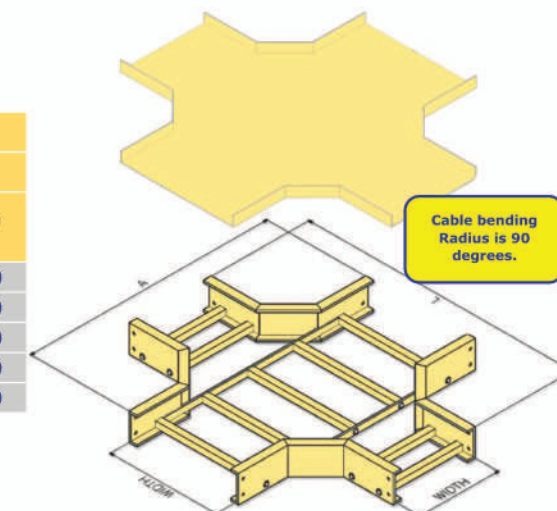


Cable bending
Radius is 90
degrees.

Horizontal Cross 4-way

Order Code:
Type-H4W-R-W
Example: HD-4W-300-600

Width (mm)	Radius							
	300mm		600mm		900mm		1200mm	
	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)	Length (A)	Width (D)
150	750	750	1350	1350	1950	1950	2550	2550
300	900	900	1500	1500	2100	2100	2700	2700
400	1000	1000	1600	1600	2200	2200	2800	2800
600	1200	1200	1800	1800	2400	2400	3000	3000
900	1500	1500	2100	2100	2700	2700	3300	3300

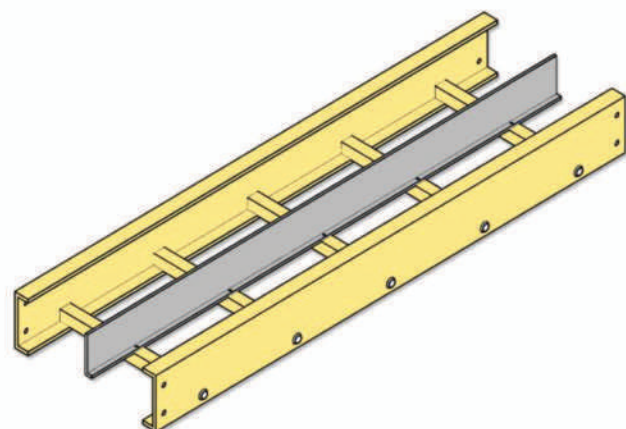


Cable bending
Radius is 90
degrees.

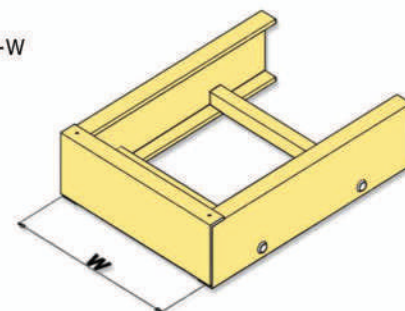


FRP CABLE LADDER FITTINGS

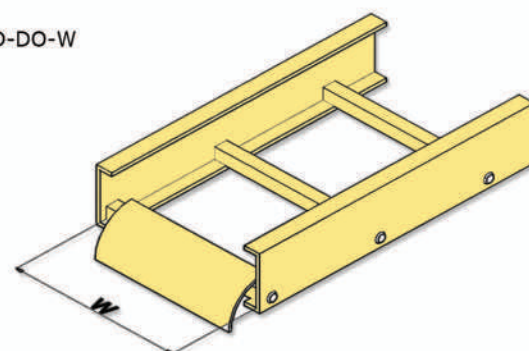
Divider Strip
Order Code: HD-DS



Blind End
Order Code: HD-BE-W

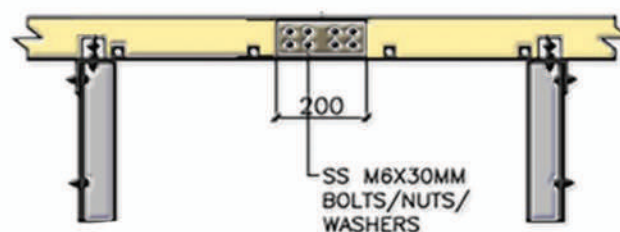
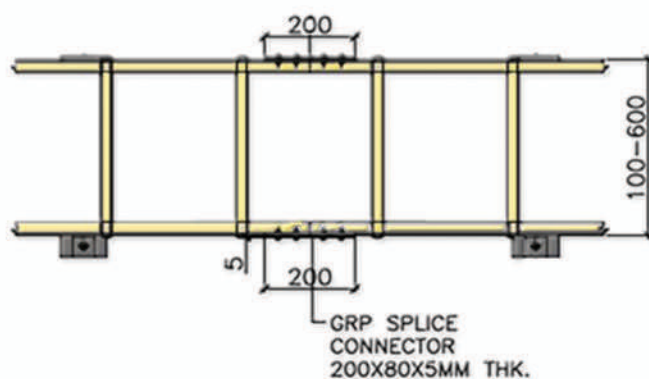


Drop Out
Order Code: HD-DO-W



SPLICE CONNECTOR FOR CABLE LADDER

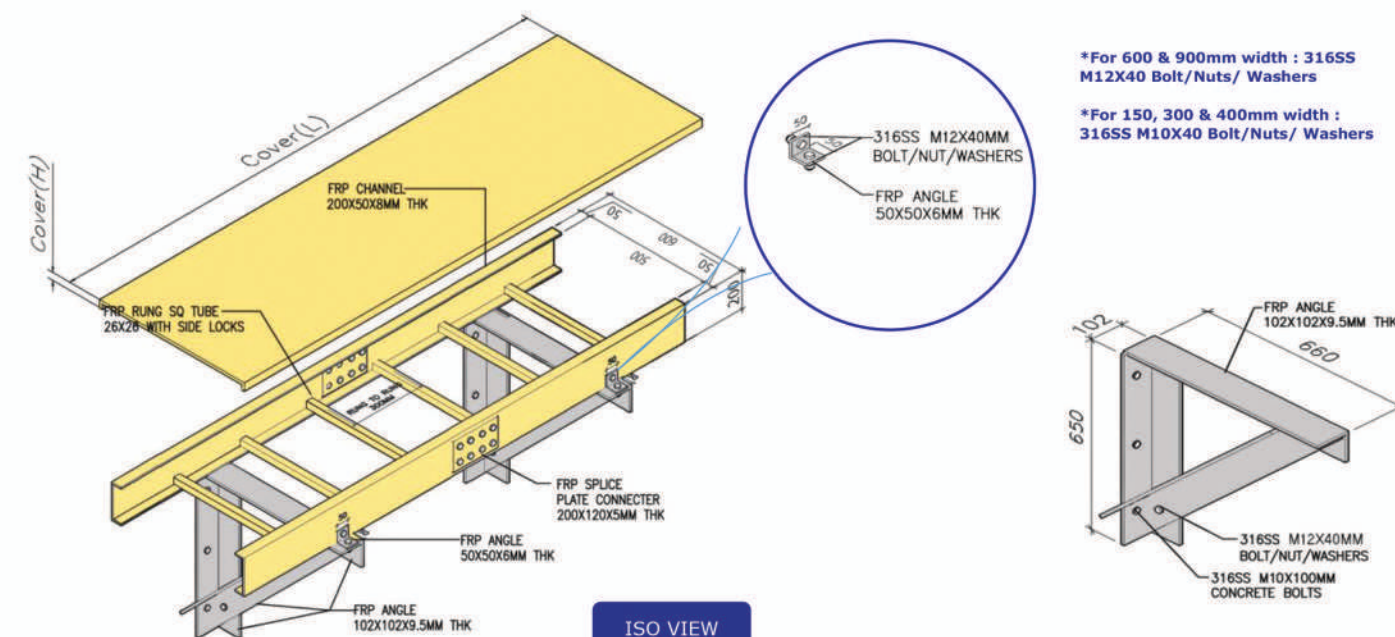
FRP Cable Ladder System comprises two Channel side rail connected by transvers rungs, Supports must be located so that connector (Splice Joints) between horizontal runs fall between the support joint.



FRP CABLE LADDER SUPPORTS

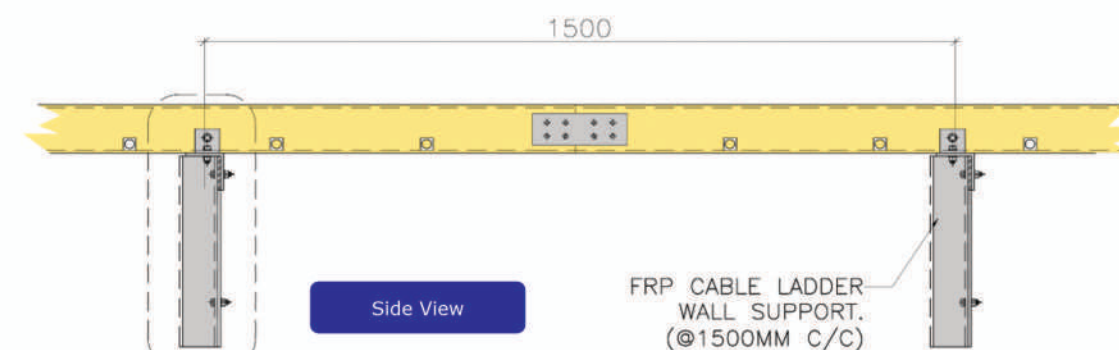
FRP Cable Ladder with Wall Support

FRP Cable Ladder 600mm width Heavy Duty with Cover and with FRP Support in accordance with the NEMA Standards Publication No. FG1-1993 Rev.01



ISO VIEW

Support Details



Side View



MATERIALS PROPERTIES

Tables below are typical coupon properties of structural shapes as per the referenced ASTM procedures. Saudi Pultrusion Industries should be consulted for recommended design details. The actual geometry and application of the structural shapes will determine its ultimate suitability.

MECHANICAL PROPERTIES	ASTM TEST	UNITS	ISOPH- THALIC	VINYL ESTER	MECHANICAL PROPERTIES	ASTM TEST	UNITS	ISOPH- THALIC	VINYL ESTER
Tensile Stress, LW	D638	MPa	210	210	Modulus of Elasticity and I-shape > 100mm	Full Section	GPa	17	17
Tensile Stress, CW	D638	MPa	47	47	Bearing Stress, LW	D953	MPa	200	200
Tensile Modulus, LW	D638	GPa	17.5	18	Poisson's Ratio, LW	D3039	cm/cm	0.33	0.33
Tensile Modulus, CW	D638	GPa	5.5	5.5	Notched Izod Impact, LW	D256	ft-lbs/in	25	25
Flexural Stress, LW	D790	MPa	210	210	Notched Izod Impact, CW	D256	ft-lbs/in	4	4
Flexural Stress, CW	D790	MPa	67	67	PHYSICAL				
Flexural Modulus, LW	D790	GPa	12.5	12.5	Coefficient of Thermal Expansion, LW	-	10 ⁻⁶ cm/cm °C	8	8
Flexural Modulus, CW	D790	GPa	5.5	5.5	24hr Water Absorption	D570	% max. by wt.	0.6	0.6
Compressive Stress, LW	D695	MPa	200	200	Specific Gravity	D792	gm/gm	1.7~1.9	1.7~1.9
Compressive Stress, CW	D695	MPa	100	105	Barcol Hardness	D2583	-	45	45
Compressive Modulus, LW	D695	GPa	17	18	ELECTRICAL				
Compressive Modulus, CW	D695	GPa	6.5	6.5	Dielectric Strength, LW	D149	KV/in	35	35
Shear Modulus, LW	-	GPa	3	3	Dielectric Strength, PF	D149	Volt/mil	200	200
Short Beam Shear, LW	D2344	MPa	31	31	Dielectric Constant, PF	D150	@60Hz	5.6	5.2
Parallel Compressive Shear Stress, LW	D3846	MPa	20	20	Arc Resistance, LW	D495	Seconds	120	120
Modulus of Elasticity, E	Full Section	GPa	18	19					

LW - Lengthwise

CW - Crosswise

PF - Perpendicular to laminate face

PROPERTY FLAMMABILITY (For Fire Retardant Polyester and Vinyl Ester Profiles)	TEST	VALUE
Underwriters Laboratory	UL94	VO
Flammability	ASTM D635	Self Exting
Tunnel Test	ASTM E-84	25 Max.
NBS Smoke Chamber	ASTM E662	650~700(typ)

NOTES:

- 1- The modulus of elasticity for full section bending is used to determine the allowable stress in beam and column design.
- 2- The shear modulus reflects the fact that the profiles are anisotropic and it has been determined from test on full length profiles.
- 3- Barcol hardness of the laminate can be a reflection of the surfacing tissues utilised. The value of 45 applies to the laminate made by SPI with polyester surfacing tissues.



CHEMICAL RESISTANCE GUIDE

CHEMICAL ENVIRONMENT	ISOPHTHALIC		VINYL ESTER		CHEMICAL ENVIRONMENT	ISOPHTHALIC		VINYL ESTER	
	Max. Wt. %	Max. Oper. Temp. (°F/°C)	Max. Wt. %	Max. Oper. Temp. (°F/°C)		Max. Wt. %	Max. Oper. Temp. (°F/°C)	Max. Wt. %	Max. Oper. Temp. (°F/°C)
Acetic Acid	50	125/52	50	180/82	Lithium Chloride	SAT	150/66	SAT	210/99
Aluminum Hydroxide	100	160/71	100	180/82	Magnesium Chloride	ALL	170/77	ALL	210/99
Ammonium Chloride	ALL	170/77	ALL	210/99	Magnesium Nitrate	ALL	140/60	ALL	210/99
Ammonium Hydroxide	28	N/R	28	100/38	Magnesium Sulfate	ALL	170/77	ALL	210/99
Ammonium Bicarbonate	15	125/52	50	160/70	Mercuric Chloride	100	150/66	100	210/99
Ammonium Sulfate	ALL	170/77	ALL	210/99	Mercurous Chloride	ALL	140/60	ALL	210/99
Benzene	N/R	N/R	N/R	N/R	Nickel Chloride	ALL	170/77	ALL	210/99
Benzoic Acid	SAT	150/66	SAT	210/99	Nickel Sulfate	ALL	170/77	ALL	210/99
Borax	SAT	170/77	SAT	210/99	Nitric Acid	20	70/21	20	120/49
Calcium Carbonate	ALL	170/77	ALL	180/82	Oxalic Acid	ALL	75/24	ALL	210/99
Calcium Nitrate	ALL	180/82	ALL	210/99	Perchloric Acid	N/R	N/R	30	100/38
Carbon Tetrachloride	N/R	N/R	100	150/65	Phosphoric Acid	100	120/49	100	210/99
Chlorine, Dry Gas	-	140/60	-	210/99	Potassium Chloride	ALL	170/77	ALL	210/99
Chlorine Water	SAT	80/27	SAT	200/93	Potassium Dichromate	ALL	170/77	ALL	210/99
Chromic Acid	5	70/21	10	150/65	Potassium Nitrate	ALL	170/77	ALL	210/99
Citric Acid	ALL	170/77	ALL	210/99	Potassium Sulfate	ALL	170/77	ALL	210/99
Copper Chloride	ALL	170/77	ALL	210/99	Propylene Glycol	ALL	170/77	ALL	210/99
Copper Cyanide	ALL	170/77	ALL	210/99	Sodium Acetate	ALL	160/71	ALL	210/99
Copper Nitrate	ALL	170/77	ALL	210/99	Sodium Bisulfate	ALL	170/77	ALL	210/99
Ethanol	50	75/24	50	100/38	Sodium Bromide	ALL	170/77	ALL	210/99
Ethylene Glycol	100	90/32	100	200/93	Sodium Cyanide	ALL	170/77	ALL	210/99
Ferric Chloride	ALL	170/77	ALL	210/99	Sodium Hydroxide	N/R	N/R	25	180/82
Ferrous Chloride	ALL	170/77	ALL	210/99	Sodium Nitrate	ALL	170/77	ALL	210/99
Formaldehyde	50	75/24	ALL	150/65	Sodium Sulfate	ALL	170/77	ALL	210/99
Gasoline	100	80/27	100	180/82	Stannic Chloride	ALL	160/71	ALL	210/99
Glucose	100	170/77	100	210/99	Sulfuric Acid	25	75/24	75	100/38
Glycerine	100	150/66	100	210/99	Tartaric Acid	ALL	170/77	ALL	210/99
Hydrobomic	50	120/49	50	150/65	Vinegar	100	170/77	100	210/99
Hydrochloric Acid	37	75/24	37	150/65	Water, Distilled	100	170/77	100	180/82
Hydrogen Peroxide	5	100/38	30	150/65	Zinc Nitrate	ALL	170/77	ALL	210/99
Lactic Acid	ALL	170/77	ALL	210/99	Zinc Sulfate	ALL	170/77	ALL	210/99

ALL - All Concentrations

SAT - Saturated Solution

N/R - Not Recommended (No Information Available)

The corrosion resistance data listed above is for general information only. Resin manufacturers have provided test data which indicates that the specific resin can withstand the corrosion condition listed above. Saudi Pultrusion Industries believes the data to be true and accurate but no guarantee is expressed or implied as to specific performance. Testing for specific environments recommended.

ISO & TEST CERTIFICATES



QUALITY CERTIFICATION

Certificate SA20/2123234696

SGS

The management system of

Saudi Pultrusion Industries

Street No. 27, 1st Industrial City, Al Oyun, P.O Box 24042, Al Ahsa 31982, Kingdom of Saudi Arabia

has been assessed and certified as meeting the requirements of
ISO 9001:2015

For the following activities

Design, Manufacturing, Fabrication, Assembly, Installation of Pultruded Profiles, Gratings, Platforms, Handrails, Ladders, Safety Gauges, Fences, Cable Tray Systems, Rebars, Cooling Tower Components and Strength Members of Glass Fiber Reinforced Polymers (GFRP).

This certificate is valid from 21 April 2023 until 21 April 2026 and remains valid subject to satisfactory surveillance audits.

Issue 2. Certified since 21 April 2020

Jonathan H. Hall

Authorised by
Jonathan Hall
Global Head - Certification Services

SGS United Kingdom Ltd
Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN, UK
t +44 (0)151 350-6666 - www.sgs.com



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ENVIRONMENTAL MANAGEMENT CERTIFICATE

Certificate SA22/00000072

The management system of

Saudi Pultrusion Industries

Street No. 27, 1st Industrial City, Al Oyun, P O Box 24042, Al Ahsa, 31982, Saudi Arabia

has been assessed and certified as meeting the requirements of
ISO 14001:2015

For the following activities

Design, Manufacturing, Fabrication and Assembly of Pultruded Profiles, Gratings, Platforms, Handrails, Ladders, Safety Cages, Fences, Cable Tray Systems, Cooling Tower Components, Strength Members of Glass Fibre-Reinforced Polymers and GFRP Rebars.

This certificate is valid from 16 December 2022 until 15 December 2025 and remains valid subject to satisfactory surveillance audits.

Issue 1. Certified since 16 December 2022

D. Willemijn Jan Meemken

Authorised by
Daniel Willemijn

Authorised by
Jan Meemken

SGS Société Générale de Surveillance SA
Technoparkstrasse 1, 8005, Zurich, Switzerland
t +41 (0)44 445-16-80 - www.sgs.com



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Page 1 / 1



OCCUPATIONAL HEALTH & SAFETY (OH&S) MANAGEMENT CERTIFICATE

Certificate SA22/00000071

The management system of

Saudi Pultrusion Industries

Street No. 27, 1st Industrial City, Al Oyun, P O Box 24042, Al Ahsa, 31982, Saudi Arabia

has been assessed and certified as meeting the requirements of
ISO 45001:2018

For the following activities

Design, Manufacturing, Fabrication and Assembly of Pultruded Profiles, Gratings, Platforms, Handrails, Ladders, Safety Cages, Fences, Cable Tray Systems, Cooling Tower Components, Strength Members of Glass Fibre-Reinforced Polymers and GFRP Rebars.

This certificate is valid from 16 December 2022 until 15 December 2025 and remains valid subject to satisfactory surveillance audits.

Issue 1. Certified since 16 December 2022

D. Willemijn Jan Meemken

Authorised by
Daniel Willemijn

Authorised by
Jan Meemken

SGS Société Générale de Surveillance SA
Technoparkstrasse 1, 8005, Zurich, Switzerland
t +41 (0)44 445-16-80 - www.sgs.com



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AL-HOTY TECHNICAL SERVICES

A Division of Al-Hoty Establishment

C. R. 2051001626 / 006
P. O. Box 31729, Al-Khobar 31952
Kingdom of Saudi Arabia
Tel.: (03) 8644150 / 8948020 / 8945452
Fax: (03) 8943980
E-Mail: almain@al-hoty.com
Website: www.al-hoty.com



الخطوط للخدمات الفنية

قسم من مؤسسة الخطوط
C. R. 2051001626 / 006
ص. ب. 31729 - الخبر 31952
المملكة العربية السعودية
الهاتف: (03) 8644150 / 8948020 / 8945452
فاكس: (03) 8943980
بريد إلكتروني: almain@al-hoty.com
موقع الشبكة: www.al-hoty.com

TEST CERTIFICATE

Certificate No. AI-99091

Page No. 1 of 1

Customer : Saudi Pultrusion Industry
P. O. Box 2531 AL Khobar 31952, K.S.A.
Tel No. (03) 858-0404
Fax No. (03) 858-0202

Certifies that the below listed equipment has been tested using a series of standard equipment.

Item Submitted

Description : **Pultruded Grating**
Manufacturer : Saudi Pultrusion Ind.
Type / Model : 1 m x 1 m x 38 mm (Grating Only)
Serial Number : 1st Sample
Calibration Date : 17 December 2008

Test Description	Applied Load	Deflection	Comment Passed / Failed
Uniform Load Test	400 kg	0.855 mm	Passed (Withstand the Load)
	600 kg	0.934 mm	

Reference Standard Used

Description	ATS ID No.	Cal. Due Date	Certificate No.	Traceability
1000 kg @ 20 kg Test Weight	ATS-166	04 May 2009	98009	NIST
Digital Comparator	ATS-098	10 June 2009	98891	NPL

Tested By:

Calibration Tech. (Stamp)

Reviewed By:

H.A. Sanford
QA/QC Officer

Approved By:

A. S. Arevalo
General Manager



ATS-Cert17-Rev. No. 01

Regional Offices
Riyadh : P. O. Box 7359 - Tel.: 01 4784292
Jeddah : P. O. Box 8129 - Tel.: 02 6855895

الوكالات الإقليمية
الرياض : ص. ب. 7359 - هاتف: 01 4784292
جدة : ص. ب. 8129 - هاتف: 02 6855895

AL-HOTY TECHNICAL SERVICES

A Division of Al-Hoty Establishment

C. R. 2051001626 / 006
P. O. Box 31729, Al-Khobar 31952
Kingdom of Saudi Arabia
Tel.: (03) 8644150 / 8948020 / 8945452
Fax: (03) 8943980
E-Mail: almain@al-hoty.com
Website: www.al-hoty.com



الخطوط للخدمات الفنية

قسم من مؤسسة الخطوط
C. R. 2051001626 / 006
ص. ب. 31729 - الخبر 31952
المملكة العربية السعودية
الهاتف: (03) 8644150 / 8948020 / 8945452
فاكس: (03) 8943980
بريد إلكتروني: almain@al-hoty.com
موقع الشبكة: www.al-hoty.com

TEST CERTIFICATE

Certificate No. AI-99090

Page No. 1 of 1

Customer : Saudi Pultrusion Industry
P. O. Box 2531 AL Khobar 31952, K.S.A.
Tel No. (03) 858-0404
Fax No. (03) 858-0202

Certifies that the below listed equipment has been tested using a series of standard equipment.

Item Submitted

Description : **Pultruded Grating**
Manufacturer : Saudi Pultrusion Ind.
Type / Model : 1 m x 1 m x 38 mm (checker plate bonded)
Serial Number : 2nd Sample
Calibration Date : 17 December 2008

Test Description	Applied Load	Deflection	Comment Passed / Failed
Uniform Load Test	400 kg	1.623 mm	Passed (Withstand the Load)
	600 kg	1.812 mm	

Reference Standard Used

Description	ATS ID No.	Cal. Due Date	Certificate No.	Traceability
1000 kg @ 20 kg Test Weight	ATS-166	04 May 2009	98009	NIST
Digital Comparator	ATS-098	10 June 2009	98891	NPL

Tested By:

Calibration Tech. (Stamp)

Reviewed By:

H.A. Sanford
QA/QC Officer

Approved By:

A. S. Arevalo
General Manager



ATS-Cert17-Rev. No. 01

Regional Offices
Riyadh : P. O. Box 7359 - Tel.: 01 4784292
Jeddah : P. O. Box 8129 - Tel.: 02 6855895

الوكالات الإقليمية
الرياض : ص. ب. 7359 - هاتف: 01 4784292
جدة : ص. ب. 8129 - هاتف: 02 6855895



AL-HOTY TECHNICAL SERVICES

A Division of Al-Hoty Establishment

C. R. 2051001626 / 005
P. O. Box 31729, Al-Khobar 31952
Kingdom of Saudi Arabia
Tel : (03) 8644150 / 8948020 / 8945452
Fax : (03) 8943980
E-Mail : alsmain@al-hoty.com
Website : www.al-hoty.com



اعتماد الهيئة العربية السعودية للمواصفات والمقاييس
SAUDI ARABIAN STANDARDS ORGANIZATION ACCREDITED

الخطوط للخدمات الفنية

قسم من مؤسسة الخطوط
مركز : ٢٠٥١٠٠١٦٢٦ / ٠٠٥
ص.ب : ٣١٧٢٩ - الخبر ٣١٩٥٢
المملكة العربية السعودية
هاتف : (٠٣) ٨٦٤٤١٥٠ / ٨٩٤٨٠٢٠ / ٨٩٤٥٤٥٢
فاكس : (٠٣) ٨٩٤٣٩٨٠
بريد إلكتروني : alsmain@al-hoty.com
موقع الشركة : www.al-hoty.com

TEST CERTIFICATE

Certificate No. **AI-87804**

Page No. **1 of 1**

Customer : Saudi Pultrusion Industries
P. O. Box 2531 Al Khobar 31952, Saudi Arabia
Tel No. 858-0404

Item Submitted

Description : 1 No. Assembled FRP Handrail System 1400 mm Wide by 1100 mm High
Tube Dimension: 50 mm Diameter & 3.2 mm Thickness
Test Method : Base on test procedure and drawings provided by SPI
Date Tested : 01 November 2007

Certifies that the above listed material has been tested using a series of calibrated test equipment.

Test Results

Test Description	Applied Load	Duration	Deflection	Remarks
Vertical Load Test	75 kgs 100 kgs	Held for 60 secs Held for 60 secs	2.94 mm 3.88 mm	No visible defect were observed

Permanent bend / deformation after 100 kgs load removed : 0.05 mm

Overall Conclusion: The test sample was inspected after the test and no visible defects were observed. The permanent deformation caused by the application of test load is negligible only.

Test Equipment Used

Description	ATS ID No.	Calibration Due Date	Certificate No.
Test Weights	ATS-166	04 November 2007	82470
Deflection Meter / Digital Comparator	ATS-098	10 December 2007	83430

Tested By:

A. P. Ayat Jr.
Test/Calibration Engineer

Reviewed By:

M. S. David
Operations Manager

Approved By:

A. S. Arevalo
General Manager

ATS-TC

Regional Offices
Riyadh : P. O. Box 7359 - Tel : 01 4784292
Jeddah : P. O. Box 8129 - Tel : 02 8665866

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AL-HOTY TECHNICAL SERVICES

A Division of Al-Hoty Establishment

C. R. 2051001626 / 005
P. O. Box 31729, Al-Khobar 31952
Kingdom of Saudi Arabia
Tel : (03) 8644150 / 8948020 / 8945452
Fax : (03) 8943980
E-Mail : alsmain@al-hoty.com
Website : www.al-hoty.com



اعتماد الهيئة العربية السعودية للمواصفات والمقاييس
SAUDI ARABIAN STANDARDS ORGANIZATION ACCREDITED

الخطوط للخدمات الفنية

قسم من مؤسسة الخطوط
مركز : ٢٠٥١٠٠١٦٢٦ / ٠٠٥
ص.ب : ٣١٧٢٩ - الخبر ٣١٩٥٢
المملكة العربية السعودية
هاتف : (٠٣) ٨٦٤٤١٥٠ / ٨٩٤٨٠٢٠ / ٨٩٤٥٤٥٢
فاكس : (٠٣) ٨٩٤٣٩٨٠
بريد إلكتروني : alsmain@al-hoty.com
موقع الشركة : www.al-hoty.com

TEST CERTIFICATE

Certificate No. **AI-89277**

Page No. **1 of 1**

Customer : Saudi Pultrusion Industries
P. O. Box 2531 Al Khobar 31952, Saudi Arabia
Tel No. 858-0404

Item Submitted

Description : 1 No. Assembled FRP Handrail System 1100mm high, 2000mm long, vertical post at every 1000 mm. Materials comprising 50x32mm round tube bolted assembly using 3-way/4-way connector, with bottom base plate and 100mm kickrail; fixed using stainless steel fasteners anchor bolts.
Test Method : Base on test procedure provided by SPI
Date Tested : 10 January 2008

Certifies that the above listed material has been tested using a series of calibrated test equipment.

Test Results

Test Description	Applied Load	Duration	Deflection	Remarks
Horizontal Pull Load Test	80 kgs 102 kgs	5 min 5 min	61.53 mm 84.95 mm	No visible defects were observed

Permanent bend / deformation after 100 kgs load removed : 0.0 mm

Overall Conclusion: The test sample was inspected after the test and no visible defects were observed. There was no permanent deformation observed.

Test Equipment Used

Description	ATS ID No.	Calibration Due Date	Certificate No.
Tensile Load Cell	ATS-221	16 August 2008	85856
Digital Caliper	ATS-163	02 January 2009	88912

Tested By:

M. S. David
Operations Manager

Reviewed By:

H. A. Sanford
QA/QC Officer

Approved By:


A. S. Arevalo
General Manager

ATS-TC

Regional Offices
Riyadh : P. O. Box 7359 - Tel : 01 4784292
Jeddah : P. O. Box 8129 - Tel : 02 8665866


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جدة : ص.ب : ٨١٢٩ - هاتف : ٠٢ ٨٦٦٥٨٦٦



AL HOTY- STANGER 	SAUDI PULTRUSION INDUSTRY	M 2K6199
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 1 OF 5
	TENSILE TEST RESULT	25 MARCH 2006

MATERIAL SPECIFICATION	:	ROUND POST (50x3mmt.)
SAMPLE NO.	:	1
MACHINED WIDTH (mm)	:	13.23
THICKNESS (mm)	:	2.88
CROSS-SECTIONAL AREA (mm ²)	:	38.102
TENSILE LOAD (kN)	:	13.5
TENSILE STRENGTH (MPa)	:	354




NILO V. YPIL
Manager
Metallurgical & NDT/Inspection
For Al Hoty-Stanger Ltd. Co.


Tested by: 
Rafael B. Espiritu Jr.

Verified by: 
Luis D. Hermogenes

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AL HOTY- STANGER 	SAUDI PULTRUSION INDUSTRY	M 2K6199
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 2 OF 5
	TENSILE TEST RESULT	25 MARCH 2006

SAMPLE IDENTIFICATION	:	OVAL SHAPE
SAMPLE NO.	:	2
MACHINED WIDTH (mm)	:	12.59
THICKNESS (mm)	:	3.17
CROSS-SECTIONAL AREA (mm ²)	:	39.91
TENSILE LOAD (kN)	:	15.7
TENSILE STRENGTH (MPa)	:	393





NILO V. YPIL
Manager
Metallurgical & NDT/Inspection
For Al Hoty-Stanger Ltd. Co.

Tested by: 
Rafael B. Espiritu Jr.

Verified by: 
Luis D. Hermogenes

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AL HOTY- STANGER	SAUDI PULTRUSION INDUSTRY	M 2K6199
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 3 OF 5
	TENSILE TEST RESULT	25 MARCH 2006

SAMPLE IDENTIFICATION : GRATING LOAD BAR (3.8mmt.)
 SAMPLE NO. : 3
 MACHINED WIDTH (mm): 12.82
 THICKNESS (mm): 3.57
 CROSS-SECTIONAL AREA (mm²): 45.77
 TENSILE LOAD (kN): 30
 TENSILE STRENGTH (MPa): 655





NILO V. YPIL
 Manager
 Metallurgical & NDT/Inspection
 For Al Hoty-Stanger Ltd. Co.

Tested by: **Rafael B. Espiritu Jr.**

Verified by: **Luis D. Hermogenes**


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INDEPENDENT LABORATORIES & MATERIALS TESTING
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AL HOTY- STANGER	SAUDI PULTRUSION INDUSTRY	M 2K6199
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 4 OF 5
	TENSILE TEST RESULT	25 MARCH 2006

SAMPLE IDENTIFICATION : SQUARE TUBE (45x6mmt.)
 SAMPLE NO. : 4
 MACHINED WIDTH (mm): 13.32
 THICKNESS (mm): 5.86
 CROSS-SECTIONAL AREA (mm²): 78.06
 TENSILE LOAD (kN): 29.3
 TENSILE STRENGTH (MPa): 375





NILO V. YPIL
 Manager
 Metallurgical & NDT/Inspection
 For Al Hoty-Stanger Ltd. Co.

Tested by: **Rafael B. Espiritu Jr.**

Verified by: **Luis D. Hermogenes**

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AL HOTY-STANGER	SAUDI PULTRUSION INDUSTRY	M 2K6199
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 5 OF 5
	TENSILE TEST RESULT	25 MARCH 2006

MATERIAL SPECIFICATION : SQUARE TUBE (45x3mm.)
 SAMPLE NO. : 5
 MACHINED WIDTH (mm) : 13.04
 THICKNESS (mm) : 2.89
 CROSS-SECTIONAL AREA (mm²) : 37.69
 TENSILE LOAD (kN) : 15.1
 TENSILE STRENGTH (MPa) : 401



[Signature]


NILO V. YPIL
 Manager
 Metallurgical & NDT/Inspection
 For Al Hoty-Stanger Ltd. Co.

Tested by: **Rafael B. Espiritu Jr.**

Verified by: **Luis D. Hermogenes**

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AL HOTY-STANGER	SAUDI PULTRUSION INDUSTRY	M 2K6032
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 1 OF 3
	TENSILE TEST RESULTS	17 JAN. 2006

MATERIAL SPECIFICATION : U - CHANNEL (76mm. WIDE)
 SAMPLE NO. : 1
 MACHINED WIDTH (mm) : 25.19
 THICKNESS (mm) : 3.43
 CROSS-SECTIONAL AREA (mm²) : 86.4
 TENSILE LOAD (kN) : 37.9
 TENSILE STRENGTH (MPa) : 439



[Signature]


NILO V. YPIL
 Manager
 Metallurgical & NDT/Inspection
 For Al Hoty-Stanger Ltd. Co.

Tested by: **Leo C. Francia I**

Verified by: **Luis D. Hermogenes**

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AL HOTY- STANGER	SAUDI PULTRUSION INDUSTRY	M 2K6032
	FIBERGLASS REINFORCED PLASTIC PROFILE	PAGE 3 OF 3
	TENSILE TEST RESULT	18 JAN. 2006

SAMPLE IDENTIFICATION : W - CHANNEL (83mm. WIDE)
 SAMPLE NO. : 3
 MACHINED WIDTH (mm) : 25.06
 THICKNESS (mm) : 2.91
 CROSS-SECTIONAL AREA (mm²) : 72.92
 TENSILE LOAD (kN) : 34.1
 TENSILE STRENGTH (MPa) : 468





NILO V. YPIL
 Manager
 Metallurgical & NDT/Inspection
 For Al Hoty-Stanger Ltd. Co.



Tested by: Leo C. Francia I



Verified by: Luis D. Hermogenes

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شركة السحيمي - فينرول المحدودة
FUGRO-SUHAIMI LTD.
 geotechnical, materials and NDT engineers



P.O. Box 2165
 Dammam 31451
 Saudi Arabia
 Phone : 03 857 4200
 Fax : 03 857 2035
 C.R. 2050004110
 E-Mail : info@fugro-suhaimi.com
 Website : www.fugro-suhaimi.com

ص.ب ٢١٦٥
 الدمام ٣١٤٥١
 المملكة العربية السعودية
 تليفون : ٠٣٨٥٧٤٢٠٠
 فاكس : ٠٣٨٥٧٢٠٣٥
 س.ر. ٢٠٥٠٠٠٤١١٠
 البريد الإلكتروني : info@fugro-suhaimi.com
 موقع الانترنت : www.fugro-suhaimi.com

Ref. JEDF-396/11

Report No. SA11-5090
 Date: 06 December 2011

Saudi Pultrusion Industry (SPI)
 Jeddah, Saudi Arabia

Attention: Engr. Haytham Saad El Din,
 Area Sales Manager

Report on Ladder Tests Fiberglass Reinforced Composite Materials (FRP) Ladder NWC Project, Main Lines of Waste Water in North of Jeddah Jeddah, Saudi Arabia

Gentlemen:

Fugro-Suhaimi Ltd. (FSL) is pleased to present this report on the tests performed on FRP Ladder at your above project site. The tests were conducted in general accordance with our proposal ref. no. JEDF-375/11 dated 20 November 2011. You authorized the tests through your Purchase Order No. 011-11-0317 dated 21 November 2011. This report presents the results of the following four (4) tests on FRP Ladder carried out by FSL on 27 November 2011.

1. Rung Torque Test
2. Rung Strength Test
3. Rung Shear Strength Test
4. Ladder Fastening Test

The FRP ladder tested comprises of 45x45x6.35 mm square tube as side railings/stiles having 450mm clear inside opening, and 32-mm serrated rungs fixed as steps with a clear distance of 300 mm between each step. The safety cage comprises of 40x6 mm pultruded vertical strips and 70x25x8 mm top, intermediate, and bottom hoops. The whole set is fastened using SS316 bolts, nuts and double washers. This ladder is completely installed in the shaft through 150x76x8mm, 170mm long wall brackets and fixed using SS316 Anchor Bolts.

The following paragraphs present a description of the four tests conducted including objectives of the tests, apparatus used, procedure, and test results.



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 Yanbu Tel: 04 396 2173 - Fax: 04 321 0963 - Jeddah Tel: 02 897 0081 - Fax: 02 897 4907
 Abqah Tel: 03 568 0812 - Fax: 03 568 1535

الرياض : تليفون : ٠١ ٤٦٤ ٠٦٦٣ - فاكس : ٠١ ٤٦٢ ٢٢٠٦ - جدة : تليفون : ٠٣ ٣٤١ ٢٧٠٠ - فاكس : ٠٣ ٣٤١ ٢٧٠١
 ينبع : تليفون : ٠٤ ٣٩٦ ٢١٧٣ - فاكس : ٠٤ ٣٢١ ٠٩٦٣ - جدة : تليفون : ٠٢ ٨٩٧ ٠٠٨١ - فاكس : ٠٢ ٨٩٧ ٤٩٠٧
 أبقيق : تليفون : ٠٣ ٥٦٨ ٠٨١٢ - فاكس : ٠٣ ٥٦٨ ١٥٣٥

شركة ذات مسئولية محدودة أسستها شركة السحيمي ومكملاتند العالمية المحدودة في عام ١٩٧٦ رأس المال ٢٠٠٠٠٠٠٠ ريال مدفوع بأكمله المركز الرئيسي الدمام

Report No. : SA11-5090
Client : Saudi Pultrusion Industry
Date : 06 December 2011
Page : 2 of 4



Rung Torque Test

Objective. To determine the ability of a joint between FRP ladder rung and stiles to withstand specified torque. The test was performed on a complete FRP ladder installed and fixed on the wall with more than three rungs.

Apparatus

- Clamping adaptor
- calibrated Standard weights
- Timer

Procedure

- Placing and securing the ladder vertically where bottom lay flat, stable, and without swaying during test.
- Attaching the clamping adaptor in the middle of the topmost rung of the ladder. See Attachment 1.
- Applying 100 N.m force on the adaptor fixed to the rung and then starting the timer. Maintaining the load for 15 seconds and observing for any movement and inspecting the joints between the rung and the stiles. Then releasing the load after 15 seconds.
- Repeating step c nine more times.
- After 10 trials of load application and releasing, inspecting the condition of the dowel connection by looking down the stile tube and observing the points of connection to the stile.

Results

- No looseness or twisting of rung in stile observed.
- No signs of damage or looseness of the dowel fixings observed.
- No observation of movement of rung during the test.

Rung Strength Test

Objective. To determine the resistance to structural damage of ladder rungs under static loading. The test was performed on a complete FRP ladder installed and fixed on the wall with more than three rungs.

Apparatus

- Hydraulic loading jack and gauge capable of applying a constant test load of 4 kN (~400 Kg).
- Top fixed reaction beam
- Flat plates, 100mm, 75mm and 50mm long that can carry the loading apparatus and securely seat on the ladder rung.
- Timer

Procedure

- Placing and securing ladder vertically where bottom lay flat and stable, without swaying during the test;
- Fixing a reaction beam above the ladder with a clear distance of 230mm;
- Placing the flat plates on the top of rung, midway between the stiles. The largest plate being at the bottom and the smallest on top;
- Placing the hydraulic loading jack on the plates between the rung and the beam. (see Attachment 2);
- Applying load until reaching 4 kN (~400 Kg) load and holding for 90 seconds;
- Releasing the force after 90 seconds; and
- Inspecting the ladders for signs of structural damage, e.g. splitting, delamination, damage at the point of entry of rung into stile.
- Checking for looseness or twisting in the stile.

Report No. : SA11-5090
Client : Saudi Pultrusion Industry
Date : 06 December 2011
Page : 3 of 4



Results

- No looseness or twisting of rung in stile observed.
- No signs of damage or looseness of the dowel fixings observed.

Rung Shear Strength Test

Objective. To determine the resistance to structural damage of FRP ladder rungs under a rung to stile shear loading. The test was performed on a complete FRP ladder installed and fixed on the wall with more than three rungs.

Apparatus

- Hydraulic loading jack and gauge capable of applying a constant test load of 4.8 kN (~480 Kg).
- Top fixed reaction beam
- Flat plates, 100mm, 75mm and 50mm long that can carry the loading apparatus and securely seat on the ladder rung.
- Timer

Procedure

- Placing and securing ladder vertically where bottom lay flat and stable, without swaying during the test.
- Fixing a reaction beam above the ladder with a clear distance of 230mm
- Placing the flat plates on the top of rung, midway between the stiles. The largest plate being at the bottom and the smallest on top;
- Placing the hydraulic loading jack on the plates between the rung and the beam. (see Attachment 2);
- Applying 4.8 kN (~480 Kg) load on the topmost rung and holding for 90 seconds.
- Releasing the load after 90 seconds.
- Inspecting the ladder rung for signs of structural damage, e.g. splitting, delamination, damage at the point of entry of rung into stile.
- Checking for looseness or twisting in the stile.

Results

- No looseness or twisting of rung in stile observed.
- No signs of damage or looseness of the dowel fixings observed.

Ladder Fastening Test

Test Objective. To determine the resistance to structural damage to the bracket mounting support of the FRP ladder. The test was performed on a complete FRP ladder installed and fixed on the wall with more than three rungs.

Apparatus

- Hydraulic loading jack and gauge capable of applying a constant test load of 4kN (~400 Kg).
- Top fixed reaction beam
- Flat plates, 100mm, 75mm and 50mm long that can carry the loading apparatus and securely seat on the ladder rung.
- Timer

Report No. : SA11-5090
Client : Saudi Pultrusion Industry
Date : 06 December 2011
Page : 4 of 4

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الشحيمي - فيفرو

Procedure

- Mounting the ladder on the brackets and secure/fix the brackets to the mounting surface.
- Fixing a reaction beam above the ladder with a clear distance of 230mm
- Placing the flat plates on the top of rung, midway between the stiles. The largest plate being at the bottom and the smallest on top;
- Placing the hydraulic loading jack on the plates between the rung and the beam. (see Attachment 3);
- Applying load until it reaches 4kN (~400 Kg) and holding it for 90 seconds.
- Releasing the load after 90 seconds;
- Inspecting for any damage to the ladder at its mounting on the brackets.
- Checking the ladder for looseness in its mounting on the brackets.
- Removing the bracket mounting of the ladder and inspecting the ladder for damage at the points of mounting.

Results

- No looseness of ladder in the mounting observed.
- No signs of structural damage observed.

Conclusion

FSL conducted tests on a FRP ladder on 27 November 2011. The ladder was tested for torque, strength, shear, and fastening. All the tests indicated satisfactory performance of the ladder, based on the criteria set forth by Saudi Pultrusion Industry (SPI).

We appreciate being of service to you on this project. Please do not hesitate to contact us if you have any questions.

Regards,

FUGRO-SUHAIMI LTD.



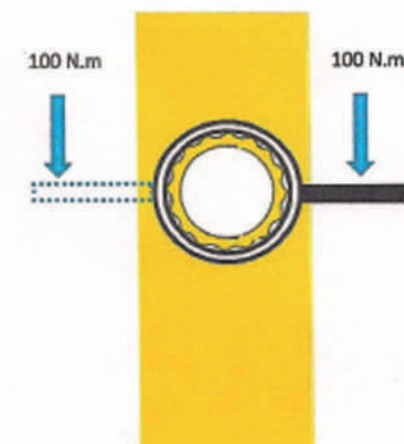
Muhammad Farooq
Senior Laboratory Supervisor



Report No. : SA11-5090
Client : Saudi Pultrusion Industry
Date : 06 December 2011

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الشحيمي - فيفرو

ATTACHMENT 1 Rung Torque Test



Left: Side view sketch of clamping adaptor attached to FRP Ladder rung.

Below: Photo of the test as the load applied to the clamping adaptor



LETTER OF TRANSMITTAL



To	Saudi Pultrusion Industry (SPI)		
Attention	Engr. Haytham Saad El Din, Area Sales Manager		
Reference	Test Reports		
Project:	NWC Project, Main lines of waste water in North of Jeddah	Report Date	06 December 2011
		Job No.	SA11-5090

Attached hereto are report as follows:

Copies	Test Date	Description	No of Report
1	27 November 2011	Quality Test on Ladder Rung Torque Test	1
1	27 November 2011	Quality Test on Ladder Rung Strength Test	1
1	27 November 2011	Quality Test on Ladder Rung Shear Strength Test	1
1	27 November 2011	Quality Test on Ladder Leader Fastening Test	1

FUGRO-SUHAIMI LTD.



Muhammad Farooq
Senior Laboratory Supervisor

Jeddah 21494- Saudi Arabia - Tel. 02 697 0081, Fax 02 257 4907
MAT-002 (rev.0) 01 May 98
Transmittal-Ladder Test-27-11-11



RUNG TORQUE TEST REPORT



Client	Saudi Pultrusion Industry (SPI)	Job No.	SA11-5090
Project	NWC Project, Main lines of waste water in North of Jeddah	Report Date	6 December 2011
Consultant	AAW & Partners	Test Date	27 November 2011
Contractor	Al Harbi Trad. & Cont. Co. Ltd.	Supplier	Saudi Pultrusion Industry (SPI)
Location	Jeddah	Material	Ladder
Reference standards	ANSI-ASC A 14.3 & OSHA-29CFR-1910.27	Test Method	SPI Test Procedure attached

A force of 340 N (34 kg) applied on the end of adaptor with 30 cm arm length which was clamped in the middle of top most rung of ladder using FSL calibrated standard weights. The applied force was recorded and held for 15 seconds. After 15 seconds, released the force and same 10 trials were completed. Inspected the condition of the dowel connection by looking down stile tube and points of connection to the stile.

Torque Applied (Held for 15 Second and repeated 10 times) N.m	Observations after Test Load Released	Yes / No
100 N.m (34 kg at the end of 30 cm adaptor arm length)	1. Looseness or twisting of rung in stile	No
	2. Any signs of structural damage or looseness of the dowel fixings	No
	3. Observation of the movement of rung during the test	No
	4. Photos / sketches of the test	Yes

Specification	Specified Torque : 100 N.m
---------------	----------------------------

Remarks	1	The specification and test procedure was provided by Saudi Pultrusion Industry (SPI) and the test was performed in accordance with SPI procedure, copy attached.
	2	Test witnessed by representatives of Saudi Pultrusion Industry (SPI) and Al Harbi Trad. & Cont. Co. Ltd.
	3	Ladder rung was subjected under 100 N.m twisting torque and held for 15 second during 10 repeated trials. The ladder rung tested for torque indicated satisfactory performance, based on the criteria set forth by SPI.

Tested by (FSL) : M. Afaq




FUGRO-SUHAIMI LTD.

Disk 205\Lab\Lab. 2011\Saudi Pultrusion Industry SPI 11-5090\GRP Rung TorqueTest-27-11-11.doc

RUNG STRENGTH TEST REPORT



Client	Saudi Pultrusion Industry (SPI)	Job No.	SA11-5090
Project	NWC Project, Main lines of waste water in North of Jeddah	Report Date	6 December 2011
Consultant	AAW & Partners	Test Date	27 November 2011
Contactor	Al Harbi Trad. & Cont. Co. Ltd.	Supplier	Saudi Pultrusion Industry (SPI)
Location	Jeddah	Material	Ladder Rungs
Reference standards	ANSI-ASC A 14.3 & OSHA-29CFR-1910.27	Test Method	SPI Test Procedure attached

The static load applied on ladder rung against reaction load by using FSL calibrated hydraulic loading jack. The applied load was read and recorded from dial gauge of hydraulic loading jack which was mounted on the ladder rung being tested.

Test Load Applied (Held for 90 Second) kN (kg)	Observations after released Test Load	Yes / No
4.0 kN (400 kg)	1. Looseness or twisting of rung in stile	No
	2. Any signs of damage or looseness of the dowel fixings	No
	3. Photos / sketches of the test attached	Yes

Specification	Specified Load : 3.75 kN (375 kg)
---------------	-----------------------------------

Remarks	1	The specification and test procedure was provided by Saudi Pultrusion Industry (SPI) and the test was performed in accordance with SPI procedure, copy attached.
	2	Test witnessed by representatives of Saudi Pultrusion Industry (SPI) and Al Harbi Trad. & Cont. Co. Ltd
	3	Ladder rung was subjected under 400 Kg static load and held for 90 second. The rung tested for strength indicated satisfactory performance, based on the criteria set forth by SPI.

Tested by (FSL) : M. Afaq



M. Afaq

FUGRO-SUHAIMI LTD.

RUNG SHEAR STRENGTH TEST REPORT



Client	Saudi Pultrusion Industry (SPI)	Job No.	SA11-5090
Project	NWC Project, Main lines of waste water in North of Jeddah	Report Date	6 December 2011
Consultant	AAW & Partners	Test Date	27 November 2011
Contactor	Al Harbi Trad. & Cont. Co. Ltd.	Supplier	Saudi Pultrusion Industry (SPI)
Location	Jeddah	Material	Ladder Rungs
Reference standards	ANSI-ASC A 14.3 & OSHA-29CFR-1910.27	Test Method	SPI Test Procedure attached

The static load applied on ladder rung against reaction load by using FSL calibrated hydraulic loading jack. The applied load was read and recorded from dial gauge of hydraulic loading jack which was mounted on the ladder rung being tested.

Test Load Applied (Held for 90 Second) kN (kg)	Observations after Released of Test Load	Yes / No
4.80 kN (480 kg)	1. Looseness or twisting of rung in stile	No
	2. Any signs of damage or looseness of the dowel fixings	No
	3. Photos / sketches of the test attached	Yes

Specification	Specified Load : 4.80 kN (480 kg)
---------------	-----------------------------------

Remarks	1	The specification and test procedure was provided by Saudi Pultrusion Industry (SPI) and the test was performed in accordance with SPI procedure, copy attached.
	2	Test witnessed by representatives of Saudi Pultrusion Industry (SPI) and Al Harbi Trad. & Cont. Co. Ltd
	3	Ladder rung was subjected under 480 Kg static load and held for 90 second. The ladder rung tested for shear strength indicated satisfactory performance, based on the criteria set forth by SPI.

Tested by (FSL) : M. Afaq



M. Afaq

FUGRO-SUHAIMI LTD.

LADDER FASTENING TEST REPORT



Client	Saudi Pultrusion Industry (SPI)	Job No.	SA11-5090
Project	NWC Project, Main lines of waste water in North of Jeddah	Report Date	6 December 2011
Consultant	AAW & Partners	Test Date	27 November 2011
Contact	Al Harbi Trad. & Cont. Co. Ltd.	Supplier	Saudi Pultrusion Industry (SPI)
Location	Jeddah	Material	Ladder
Reference standards	ANSI-ASC A 14.3 & OSHA-29CFR-1910.27	Test Method	SPI Test Procedure attached

The static load applied on ladder rung against reaction load by using FSL calibrated hydraulic loading jack. The applied load was read and recorded from dial gauge of hydraulic loading jack which was mounted on the ladder rung being tested.

Test Load Applied (Hold for 90 Second) kN (kg)	Observations after Release of Test Load	Yes / No
4.00 kN (400 kg)	1. Looseness of ladder in the mounting	No
	2. Any signs of structural damage	No
	3. Photos / sketches of the test attached	Yes

Specification	Specified Load : 3.75 kN (375 kg)
---------------	-----------------------------------

Remarks	1	The specification and test procedure was provided by Saudi Pultrusion Industry (SPI) and the test was performed in accordance with SPI procedure, copy attached.
	2	Test witnessed by representatives of Saudi Pultrusion Industry (SPI) and Al Harbi Trad. & Cont. Co. Ltd
	3	Ladder was subjected under 400 Kg static load and held for 90 second. Base on above mentioned visual observations made after releasing load, Ladder GRP Rung comply with safety requirements of ANSI-ASC A 14.3. The ladder tested for fastening indicated satisfactory performance, based on the criteria set forth by SPI.

Tested by (FSL) : M. Afaq




FUGRO-SUHAIMI LTD.

Disk 205:\Lab\Lab. 2011\Saudi Pultrusion Industry SPI 11-5090\GRP Ladder Fastening Test-27-11-11.doc

LETTER OF TRANSMITTAL

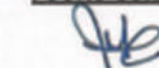


To	Saudi Pultrusion Industry (SPI)		
Attention	Engr. Haytham Saad El Din, Area Sales Manager		
Reference	Test Reports		
Project:	NWC Project, Main lines of waste water in North of Jeddah	Report Date	06 December 2011
		Job No.	SA11-5090

Attached hereto are report as follows:

Copies	Test Date	Description	No of Report
1	27 November 2011	Site Data Sheet for Ladder Quality Test	1

FUGRO-SUHAIMI LTD.



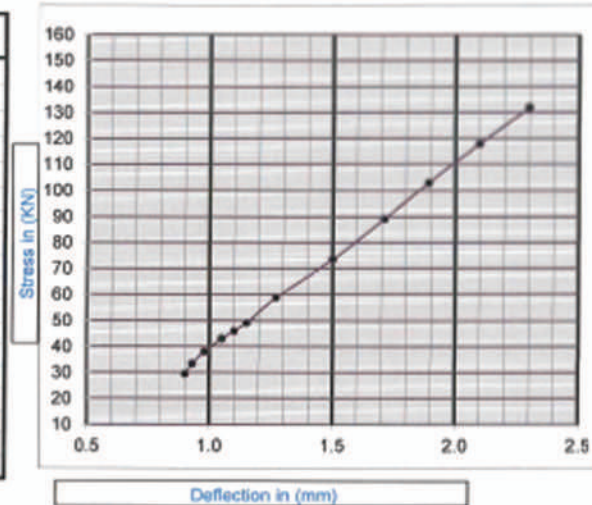
Muhammad Farooq
Senior Laboratory Supervisor

Jeddah 21494- Saudi Arabia - Tel. 02 697 0081, Fax 02 257 4907
MAT-002 (rev. 0) 01 May 98
Transmittal-Ladder Test-DFR



KING ABDULAZIZ INTERNATIONAL AIRPORT DEVELOPMENT PROJECT (PHASE I), JEDDAH - KSA			
CONSULTANT	CONTRACTOR	INDEPENDENT TESTING LABORATORY	
dar al-handasah shair and partners	مجموعة بن لادن السعودية SAUDI BINLADIN GROUP	الجزار	
Client	M/s Saudi Pultrusion Industries	Sampling date	NP
Location	NP	Casting Date	NP
Reference #	NP	Testing Date	13.08.2014
Sample Description	Fiber Glass Reinforced Plastic	Reporting Date	16.08.2014
Breadth (mm)	150mm		
Span Length (mm)	500mm		
Depth (mm)	100mm		

Deflection (mm)	Stress (KN)	Stress (Ton)
0.90	29.4	3.0
0.93	33.3	3.4
0.98	36.0	3.9
1.05	43.0	4.4
1.10	45.9	4.7
1.15	49.0	5.0
1.27	58.8	6.0
1.50	73.5	7.5
1.71	89.0	9.1
1.89	103.0	10.5
2.10	118.0	12.0
2.30	132.0	13.5
2.45	147.0	15.0

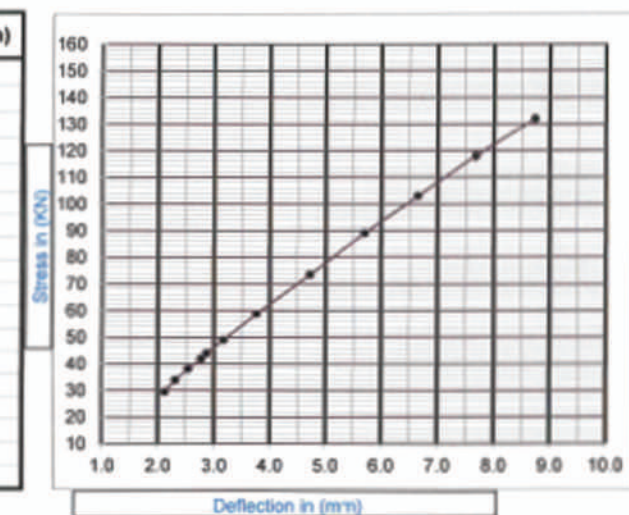


Remarks: 1. Test Carried out according to SPI Method
2. No Cracks appear up to 15 Ton load at 500mm Span Length.
3. Maximum deflection noted without any cracks 2.45mm.

For Omar Jazzar Consulting Engineers
(Geotechnical and Material Engineers)

KING ABDULAZIZ INTERNATIONAL AIRPORT DEVELOPMENT PROJECT (PHASE I), JEDDAH - KSA			
CONSULTANT	CONTRACTOR	INDEPENDENT TESTING LABORATORY	
dar al-handasah shair and partners	مجموعة بن لادن السعودية SAUDI BINLADIN GROUP	الجزار	
Client	M/s Saudi Pultrusion Industries	Sampling date	NP
Location	NP	Casting Date	NP
Reference #	NP	Testing Date	13.08.2014
Sample Description	Fiber Glass Reinforced Plastic	Reporting Date	16.08.2014
Breadth (mm)	150mm		
Span Length (mm)	800mm		
Depth (mm)	100mm		

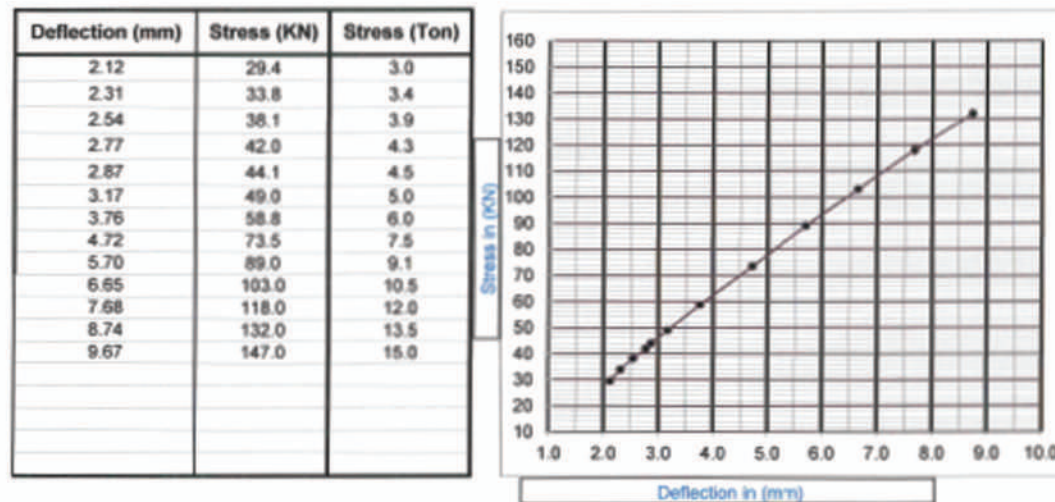
Deflection (mm)	Stress (KN)	Stress (Ton)
2.12	29.4	3.0
2.31	33.8	3.4
2.54	38.1	3.9
2.77	42.0	4.3
2.87	44.1	4.5
3.17	49.0	5.0
3.76	58.8	6.0
4.72	73.5	7.5
5.70	89.0	9.1
6.65	103.0	10.5
7.68	118.0	12.0
8.74	132.0	13.5
9.67	147.0	15.0



Remarks: 1. Test Carried out according to SPI Method
2. No Cracks appear up to 15 Ton load at 800mm Span Length.
3. Maximum deflection noted at 15 Ton Load is 9.67mm.

For Omar Jazzar Consulting Engineers
(Geotechnical and Material Engineers)

KING ABDULAZIZ INTERNATIONAL AIRPORT DEVELOPMENT PROJECT (PHASE I), JEDDAH - KSA			
CONSULTANT		CONTRACTOR	INDEPENDENT TESTING LABORATORY
 dar al-handasah shair and partners		 مجموعة بن لادن السعودية SAUDI BINLADIN GROUP	 الجزار
Client	M/s Saudi Pultrusion Industries	Sampling date	NP
Location	NP	Casting Date	NP
Reference #	NP	Testing Date	13.08.2014
Sample Description	Fiber Glass Reinforced Plastic	Reporting Date	16.08.2014
Breadth (mm)	150mm		
Span Length (mm)	800mm		
Depth (mm)	100mm		



Remarks: 1. Test Carried out according to SPI Method
 2. No Cracks appear up to 15 Ton load at 800mm Span Length.
 3. Maximum deflection noted at 15 Ton Load is 9.67mm.

For Omar Jazzar Consulting Engineers
 (Geotechnical and Material Engineers)





AL-HOTY CALIBRATION SERVICES
 A BRANCH OF AL-HOTY CO. LTD.

Calibration Laboratory
 C. R. 2051015391
 P.O. Box 31729, Al-Khobar 31952
 Kingdom of Saudi Arabia
 Tel. : (013) 864 4150 / 894 8020 / 894 5452,
 Fax : (013) 898 1644 / 8943980
 E-Mail : acs.kh@al-hoty.com
 Website : www.alhoty Calibration.com



Test Certificate

Certificate No. AI-189210

Page No. 1 of 2

Customer

Saudi Pultrusion Industries
 P. O. Box 2531 Al Khobar 31952, K. S. A.

Certifies that the below listed equipment has been tested using a series of calibrated test equipment.

Item Submitted

Description : Fiber Glass FRP Corrugated Sheet
Test Location : Saudi Pultrusion Plant, Al Hassa Industrial
Manufacturer : Saudi Pultrusion Inc.
Test Method : SPI Simple test Procedure of deflection on specific load requirement
Product Dimension : Width 992 mm x Length 7000 mm x Thickness 8 mm
Material Weight : 24 kg per Square Meter
Sample Number : # 1
Environment : 36.2°C / 28%RH
Date Tested : 28 September 2016

Test Description

: As per SPI requirement. The entire deflection testing was performed only on a single sample of Fiber Glass FRP Corrugated Sheet by loading the specified uniform sequence of weights.

A 5 minute holding time was observed per increment of all loading before measuring the deflection.

The testing was carry-out between the separating base support to the required span out-ward from the center of the (UUT) Unit Under Test.

Tested By :

Test Engineer (Stamp)

Approved By :

Quality Manager

ACS-TC-102 Rev. 0



This certifies that the above listed instrument has been tested using standards whose accuracies are traceable to national or international standards and in accordance with the quality system conform to ISO/IEC 17025:2005.
 This certificate applies only to the item described. Test certificate without signature and stamp is not valid. The readings presented are the result at the time of test and do not carry any implication regarding the long term stability of the item submitted.
 This certificate may not be reproduced other than in full, except with the prior written approval by Al Hoty Calibration Services.

ACS-CERT/COVER Rev. 03



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OMAR JAZZAR CONSULTING ENGINEERS
Design, Supervision, Studies & Survey
Geotechnical, Materials Testing, Environmental, Water
LICENSE (CONSULT. 219, GEOTECH - 3)
MEMBERSHIP NO.: 9946 RIYADH / 6213 MADINA



عمر جزار - مهندسون استشاريون
تصميم - إشراف - دراسات - مساحة
فحص تربة، اختبار مواد، بيئة، مياه
ترخيص هندسي: ٢١٩ / فحص تربة - ٣
رقم العضوية: ٩٩٤٦ الرياض / ٦٢١٣ المدينة

ISO 9001: 2008 CERTIFIED

ISO/ IEC 17025 : 2005 CERTIFIED

Client file # OJCE-RJ-M18-001

Messrs

Saudi Pultusion Industries

KAIA project, Jeddah,

Kingdom of Saudi Arabia

P. O. Box : 41956

Riyadh - 11531,

Saudi Arabia

10th March 2018

DESCRIPTION: FRP/GRP(Fiberglass Reinforced Plastic) Pultruded Grating

Thk.32mm, Series 406, Panel Weight Per Square Meter 19.75kg/m2.

Summary of Test Method :

The Testing is conducted in different Loading System by applying Uniform & Concentrated Load for 5.00 Min. holding time and Measure the Deflection in Every Incremental Load Requirement.

Overall Remarks :

The Unit Under Test (UUT) was satisfactory withstand the given load, no visible Damage nor Deformation was Noticed after the test.

Uniform Load Deflection in mm

Deflection	Kg/m2			
SPAN(MM)	240	480	980	1200
600	0.80	1.64	2.28	2.97
900	1.54	3.45	4.98	5.11
1200	2.06	4.99	6.17	7.06
1500	5.14	7.98	11.57	14.46

Concentrated Load Deflection in mm

Deflection	Kg/m						
SPAN(MM)	300	450	600	750	1000	1500	3000
600	1.46	1.62	2.00	2.12	3.04	4.20	7.20
900	2.4	3.37	4.65	5.18	8	10.90	22.35
1200	7.18	8.05	12.15	13.25	18.08	25.70	45.62
1500	11.45	14.68	18.02	21.60	29.00	40.22	-

Yours Very truly,

FOR OMAR JAZZAR CONSULTING ENGINEERS

(Geotechnical & Materials Engineers)

Engr. S.TanvirAlem, M.Sc.

RIYADH (H.O) P.O. Box 41956 P. code 11531 : الرمز البريدي : ص. ب. 41956

Tel. 4776512, 4749953, 4729452 Fax: 4776516 email : ojce-ryd@jazzar.com.sa

Branch Offices :	جدة	المدينة	القصيم	الجبيل	حائل	نجران
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TEL: 6696871	8238686	3262792	3418699	5344441	5223761	هاتف:
FAX: 6612867	8285990	3262731	3418659	5346414	5223761	فاكس:

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MEMBERSHIP NO.: 9946 RIYADH / 6213 MADINA



عمر جزار - مهندسون استشاريون
تصميم - إشراف - دراسات - مساحة
فحص تربة، اختبار مواد، بيئة، مياه
ترخيص هندسي: ٢١٩ / فحص تربة - ٣
رقم العضوية: ٩٩٤٦ الرياض / ٦٢١٣ المدينة

ISO 9001: 2008 CERTIFIED

ISO/ IEC 17025 : 2005 CERTIFIED

Client file # OJCE-RJ-M18-001

Messrs

Saudi Pultusion Industries

KAIA project, Jeddah,

Kingdom of Saudi Arabia

P. O. Box : 41956

Riyadh - 11531,

Saudi Arabia

10th March 2018

DESCRIPTION : FRP/GRP(Fiberglass Reinforced Plastic) Pultruded Grating

Thk.32mm, Series 606, Panel Weight Per Square Meter 14.00 kg/m2.

Summary of Test Method :

The Testing is conducted in different Loading System by applying Uniform & Concentrated Load for 5.00 Min. holding time and Measure the Deflection in Every Incremental Load Requirement.

Overall Remarks :

The Unit Under Test (UUT) was satisfactory withstand the given load, no visible Damage nor Deformation was Noticed after the test.

Uniform Load Deflection in mm

Deflection	Kg/m2			
SPAN(MM)	240	480	980	1200
600	1.08	2.22	3.25	3.35
900	1.85	3.60	4.60	6.68
1200	2.80	5.30	12.2	16.01

Concentrated Load Deflection in mm

Deflection	Kg/m						
SPAN(MM)	150	300	450	600	750	1000	1500
600	1.35	1.54	2.44	2.97	3.12	4.03	5.75
900	3.40	4.75	6.73	8.04	8.91	12.22	16.70
1200	6.68	9.54	14.17	15.52	17.05	23.98	31.49

Yours Very truly,

FOR OMAR JAZZAR CONSULTING ENGINEERS

(Geotechnical & Materials Engineers)

Engr. S.TanvirAlem, M.Sc.

RIYADH (H.O) P.O. Box 41956 P. code 11531 : الرمز البريدي : ص. ب. 41956

Tel. 4776512, 4749953, 4729452 Fax: 4776516 email : ojce-ryd@jazzar.com.sa

Branch Offices :	جدة	المدينة	القصيم	الجبيل	حائل	نجران
Jeddah	Madina	Qaseem	Jubail	Hail	Najran	
TEL: 6696871	8238686	3262792	3418699	5344441	5223761	هاتف:
FAX: 6612867	8285990	3262731	3418659	5346414	5223761	فاكس:

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MEMBERSHIP NO.: 9946 RIYADH / 6213 MADINA



الجزار

عمر جزار - مهندسون استشاريون
تصميم - إشراف - دراسات - مساحة
فحص تربة ، اختبار مواد ، بيئة ، مياه
ترخيص هندسي : ٢١٩ / فحص تربة - ٣
رقم العضوية : ٩٩٤٦ الرياض / ٦٢١٣ المدينة

ISO 9001: 2008 CERTIFIED ISO/ IEC 17025 : 2005 CERTIFIED

Client file # OJCE-RJ-M18-001

Messrs
Saudi Pultusion Industries
KAIA project, Jeddah,
Kingdom of Saudi Arabia

P. O. Box : 41956
Riyadh - 11531,
Saudi Arabia
10th March 2018

DESCRIPTION : FRP/GRP(Fiberglass Reinforced Plastic) Pultruded Grating
Thk.50mm, Series 606, Panel Weight Per Square Meter 20.15kg/m2.

Summary of Test Method:

The Testing is conducted in different Loading System by applying Uniform & Concentrated Load for 5.00 Min. holding time and Measure the Deflection in Every Incremental Load Requirement.

Overall Remarks:

The Unit Under Test (UUT) was satisfactory withstand the given load, no visible Damage nor Deformation was Noticed after the test.

Uniform Load Deflection in mm

Deflection	Kg/m2			
SPAN(MM)	240	480	980	1200
600	0.48	0.90	1.20	1.98
900	1.25	1.31	1.97	2.15
1200	2.05	2.80	3.70	4.74

Concentrated Load Deflection in mm

Deflection	Kg/m						
SPAN(MM)	150	300	450	600	750	1000	1500
600	0.58	0.83	1.04	1.11	1.20	1.54	2.16
900	1.50	2.52	3.07	3.44	3.62	5.08	6.64
1200	2.99	3.70	5.39	5.79	6.44	9.7	14.07

Yours Very truly,

FOR OMAR JAZZAR CONSULTING ENGINEERS
(Geotechnical & Materials Engineers)

Engr. S.TanvirAlem, M.Sc.

RIYADH (H.O.) P.O. Box 41956 P. code 11531

Tel. 4776512, 4749953, 4728457 Fax: 4776516 email : ojce-ryd@jazzar.com.sa

Branch Offices : Jeddah Madina Qaseem Jubail Hail Najran
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Group



شركة المياه الوطنية
National Water Company



المؤسسة العامة لتحلية المياه المالحة
Saline Water Conversion Corporation



APPROVED VENDOR ID NO.

COMPANY	ID NO.
SAUDI ARAMCO	10035524
SABIC	504177
SAUDI ELECTRIC COMPANY	06748
SALINE WATER CONVERSION CORPORATION (SWCC)	1735
SAMREF (SAUDI ARABIAN MOBIL REFINERY)	10625
ROYAL COMMISSION (FILE NUMBER)	12478
JUBAIL CHEMICAL INDUSTRIES	101721
M. S. ALSUWAIDI	83381
SAUDI BIN LADEN	21303
ZAMIL STEEL	3905
SASREF (SAUDI ARABIAN SHELL)	1002353
KING FAHD UNIVERSITY OF PETROLEUM & MINERALS	2832
NESMA & PARTNERS	4269
SINOPEC	2008030081
ZAMIL LADDER	LS1242
NASSER AL- HAJRI	CL 02881
SAUDI AMANA	00730
REZAYAT CO.	516731
MOHAMMAD AL MOJIL	21011810
AZMEEL/SAUDI TURPANE	1620
AL HARBI	10046
MARAFIQ	1763
SAHARA Petrochemicals	101167
NATIONAL WATER COMPANY	20742
AL RASHID TRADING & CONTRACTING CO.	10264
A.S.R.F. CONSORTIUM	07969



Saudi Arabian Oil Company
Supplier Relationship Management
8-102 North Park 2
Dhahran 31311
Saudi Arabia

Tel.: (966 13) 874-0958
Fax: (966 13) 874-1495

أرامكو السعودية
saudi aramco

January 30, 2022

SQU-002-22

FAISAL A. AL-ARFAJ, General Manager
Saudi Pultrusion Industry
P.O. BOX 24042
HOFUF 31982

Fax : 013 534 2299

Mr. Al-Arfaj,

We are pleased to inform you that your company is included in the Saudi Aramco Supplier Information System under Vendor Code No. **10035524**, Plant No. **30004592** for the following products provided your company continues to meet relevant Saudi Arabian and Saudi Aramco standards.

9COM	Description
6000000774	TRAY; CABLE, FIBERGLASS
6000000631*	GRATING; FIBERGLASS; STRUCTURAL NON FIRE

*Approved with Limitation

This approval, however, should not be construed as a commitment by Saudi Aramco to purchase from you. Being approved as a supplier only grant your company the opportunity, along with other approved sources, to respond to requests for submitting proposals in accordance with Saudi Aramco's established policies and procedures. All purchase agreements and orders will be issued based on the name and address stated in your commercial registration (CR), as stated above.

Saudi Aramco wishes to remind you that being recognized as a potential supplier is a privilege which carries with it serious obligations and responsibilities to act in a legal and ethical manner. We wish to remind you of the Saudi Aramco Supplier Code of Conduct (SCOC) which you acknowledged. Failure to abide by the principles set forth in the SCOC can result in adverse actions being taken by Saudi Aramco against you including suspension of you as a supplier. Saudi Aramco also expects each of its suppliers to satisfy each of the requirements of any purchase agreements or orders which might be placed and to act responsibly and reliably as a supply chain supplier.

Please note that evidence of representation from your supply source(s) must be supported by letter(s) of confirmation stipulating the territorial coverage and specific product lines involved. Your supply sources must have been accepted as qualified suppliers of the range of materials that you wish to supply. It is also important that you advise us immediately of any changes in the agreements which you have negotiated with your supply sources and/or any changes in your contact information such as postal address, telephone and fax numbers.

Suppliers should apply for Saudi Aramco Supplier Portal access by forwarding a request to portal-registration@aramco.com. The Supplier Portal is the main electronic business tool used between Saudi Aramco and its suppliers and serves to improve the flow and accuracy of key supply chain information.

For further information or assistance please contact Adnan Jaman on 874-0336.

Adnan A Jaman, Supervisor
Supplier Qualification Unit

It is the responsibility of the supplier to notify Saudi Aramco Supplier Relations Management Unit of the following:

1. Change of Name/ Address/ Owner(s)
2. Any change of the supplier location (sub sourcing fabrication of major components)
3. Discontinue of fabrication or supply of approved commodities (9COMs, 9CATS and/or MSGs)

Saudi Arabian Oil Company (Saudi Aramco), is a company formed by Royal Decree No. M/8 dated 04/04/1409H, and is a joint stock company, with certificate of registration number 2052101150 having its principal office at P.O. Box 5000, Dhahran, Postal Code 31311, Kingdom of Saudi Arabia and a fully paid capital of SAR 60,000,000,000.

Saudi Aramco: Company General Use



Gentlemen,

Your company has been registered with SAMREF and the Vednor number # 10625. In future Correspondences you can use this number. For future business with SAMREF you should complete and periodically update pre-qualification documents. If you have supplied SAMREF with your Pre-qualification Documents within the last twelve (12) months, please disregard this request.

We request that you complete and return the enclosed Questionnaire to the Refinery Purchasing Department at your earliest convenience. Information furnished therein will, of course, be kept confidential.

Please furnish copies of the following with your complete questionnaire:

- Commercial Registration Certificate stamped at the back confirming its validity.
- Valid and Current Zakat Certificate.
- Valid and Current Chamber of Commerce Membership Certificate.
- Financial Statement for the fiscal year proceeding this year.
- Completed SAP Registration Form. (mandatory)
- Copies of ISO Certificate & Letters Agency representation.

Satisfactory completion and acceptance of a Supplier's Qualification documents does not constitute an obligation on the part of SAMREF to automatically invite you to bid for SAMREF's requirements. Supplier's performance in the execution of, or declination to bid for previous projects, or failure to supply the requested information within two weeks may result in SAMREF's inability to deal with your firm either now or in the future.

Supplier should submit one (1) copy of all required information and/or documentation.

Please contact the undersigned on 04-396-4594, if you have questions and/or require clarification.

Very truly yours,

Ebrahim H. Mohandiss
Purchasing & Logistics Superintendent

Thanks/Regards

GIMMY GEORGE
Documentation Clerk
Contracts, Purchasing & Warehouse (CP & W) Department
Saudi Aramco Mobil Refinery Co. Ltd. (SAMREF)
P.O. Box 30078, Yanbu Al-Sinaiyah
Kingdom of Saudi Arabia
e-mail: gimmy.george@samref.com.sa
Tel. +966-4-396 4230
Fax. +966-4-3964026



طرق المنطقة الشرقية

ص.ب. ٥١٩٠
الدمام ٣١٤٢٢
الشركة السعودية
هاتف: ٨٥٨-٦٦٥٤
فاكس: ٨٥٨-٦٦٧٧
البريد الإلكتروني: 800@se.com.sa



الشركة السعودية للكهرباء
Saudi Electricity Company

إدارة شئون المواد / دائرة المشتريات
المركز الرئيسي بالدمام - مبنى رقم ٣ - غرفة ٣٠٠ غرب
تلفون ٨٥٨-٦٦٥٤ فاكس ٨٥٨-٦٦٧٧
Materials Supply Department / Purchasing Division
Room # 3-300 W, SEC-ER HQS, Dammam
TEL 858-6654 FAX 858-6777

April 11, 2006

١٣ ربيع الأول ١٤٢٧ هـ

SAUDI PULTRUSION INDUSTRY,
P.O. BOX # 2531 AL-KHOBAR 31952.

المصنع السعودي لصناعة البتروجن .
ص.ب. ٢٥٣١ الخبر ٣١٩٥٢

السلام عليكم ورحمة الله وبركاته ،

We are pleased to inform that your commercial documents have been evaluated and your Company is now registered with Saudi Electricity Company, Eastern Region under Vendor Code No. 06748.

يسرنا أن نخبركم بأننا قد استلمنا جميع الوثائق الخاصة بترخيصكم في التعامل معنا وبعد تقويم المستندات تم تسجيلكم في الشركة السعودية للكهرباء - بالمنطقة الشرقية تحت رقم ٠٦٧٤٨

We would suggest that you maintain a continuous contact with Vendor Liaison Unit of Purchasing Division on Phone No. 858-6654.

ونقترح بأن تكونوا على اتصال مستمر مع دائرة المشتريات - وحدة الاتصال بالتجار تلفون رقم ٨٥٨-٦٦٥٤ ،

To enable you to participate in our Quotation Requests, you may visit our web site www.se.com.sa/mmd/ for bidding instructions.

ولتزيد من المعلومات عن كيفية المنافسة في المناقصات المختلفة يمكنكم زيارة موقعنا على الشبكة www.se.com.sa/mmd/

We thank you for your interest to supply Saudi Electricity Co., in the Eastern Region.

شاكرين لكم رغبتمكم في التعامل مع الشركة السعودية للكهرباء - بالمنطقة الشرقية .

Regards,
Very truly yours,

مع أطيب تحياتي ،

SUHAIL Y. AL-ALI
Purchasing Manager

سهيل يوسف العلي
مدير دائرة المشتريات

SHARED SERVICES SABIC

سابك
سابك

FAX MESSAGE

To : SAUDI PULTRUSION INDUSTRY	Date : 14 March 2006
Attention : MOHAMMAD Z. HAMDAN	Tel. No. : 038580404
Subject : QUALIFICATION	Fax No. : 038580202
	Total # Page/s : 1

Dear Mohammad:

Based on business needs, we are pleased to report that you have been qualified under Vendor # 504177.

Qualification means that you are eligible to receive requests for quotations and orders for the designated materials and/ or services. However, there is no guarantee that you will receive any such requests or orders.

Thank you for your interest in being a supplier to SABIC.

Best regards,

Emad N. Al-Mogharbil
EMAD N. AL-MOGHARBIL
Senior Qualification Analyst
Supplier Qualification Section
SABIC
Tel: 00966 3 340 1986
Fax: 00966 3 340 1850
E-mail: mogharbil@sabic.com

RECEIVED 14 MAR 2006
SABIC

Notes: For Supplier Information update, please contact the following:
Supplier Qualification Section - Projects & Turnaround Dept.
Saudi Basic Industries Corporation (SABIC)
Shared Services - Supply Management Organization (SMO)
P. O. Box 11115, Jubail Industrial City 31981
Kingdom of Saudi Arabia
TEL: 00966-(3)-340-1808 / 1803 / 1806 / 1819 / 1828
FAX: 00966-(3)-340-1850
EMAIL: smo@sabic.com

ملحوظة -
لإجراء تحديثات معلومات المورد، يرجى الاتصال بالمركز التالي:
قسم التأهيل للموردين - مشاريع وعمليات التحويل
شركة البتروكيماويات الأساسية (سابك)
قسم الخدمات المشتركة - إدارة المشتريات
صندوق بريد: 11115 - مدينة Jubail الصناعية - 31981
المملكة العربية السعودية
هاتف رقم: 00966-(3)-340-1808 / 1803 / 1806 / 1819 / 1828
فاكس رقم: 00966-(3)-340-1850
بريد الإلكتروني: smo@sabic.com

مرفاق
MARAFIQ

Fax

To:- Ahmed Al-Arfaj	From Khalid Al-Otaibi
Company Abdullatif Al-Arfaj & Brothers Holding Co.	Department Material Dept.
Fax Number 03 858 0202	Fax Number +966 340 1282
Tel number 03 858 0404	Tel number + 966 3 341 0747 Ex 3737
Date 17 APRIL 2006	E-mail otaibik@marafiq.com.sa
Total pages 1	

Attention Mr. Ahmed

We are pleased to inform you that your company has been registered in the MARAFIQ SAP vendor registry and your vendor number is **1763**. Your company is now qualified to participate in any bidding process that MARAFIQ may offer in the future.

We look forward to a long and mutually beneficial relationship with your company.
Yours faithfully,

Khalid F. Al-Otaibi
Khalid F. Al-Otaibi
Procurement superintendent

Power and Water Utility Company for Jubail and Yanbu
• Jubail (Headquarters)
Jubail Industrial City 31981- PO Box 11133
Tel +966 3 340 1111 • Fax +966 3 341 8128
• Yanbu
Yanbu Industrial City - PO Box 30144
Tel +966 4 386 8000 • Fax +966 4 321 0387
Kingdom of Saudi Arabia

Shuaib Jubbah Block On
Custodial SR 2.8 billion
OR 2055004988

شركة مرفاق العامة للمياه والكهرباء بالجبيل والينبع
• الجبيل (المقر الرئيسي)
مدينة الجبيل الصناعية - صندوق بريد 11133
الهاتف +966 3 340 1111 • فاكس +966 3 341 8128
• ينبع
مدينة ينبع الصناعية - صندوق بريد 30144
الهاتف +966 4 386 8000 • فاكس +966 4 321 0387
المملكة العربية السعودية

1001

MARAFIQ MATERIALS DEPT

17/04/2006 16:48 FAX 00966 3 3401281

KINGDOM OF SAUDI ARABIA
Royal Commission For Jubail & Yanbu
Directorate General For Jubail Project
Procurement Department



المملكة العربية السعودية
المهنة الملكية للمباني والبنية
إدارة العامة لمشروع الجبيل
إدارة العقود والمشتريات

نموذج تسجيل الموردين
Suppliers Registration Form

File Number: 12478 Date: JANUARY 21, 2006

1- Supplier Name : اسم المورد :
SAUDI PULTRUSION INDUSTRY المصنع السعودي لصناعة البترومين

2- Mailing Address :- عنوان المراسلة :-

P.O.BOX : 2531 City AL-KHOBAR ص.ب. : ٢٥٣١ المدينة : الخبر

City Code : 31952 الرمز البريدي : ٣١٩٥٢

Country SAUDI ARABIA الدولة : المملكة العربية السعودية

Telephone : 858-0404 Fax : 858-0202 هاتف : ٨٥٨-٤٠٤ فاكس : ٨٥٨-٢٠٢

www.saudi-pultrusion.com E-Mail : hamdan@saudi-pultrusion.com
brummel@saudi-pultrusion.com

3- Degree of Ownership : نسبة الملكية السعودية : ٣

() 100% Saudi (x) سعودية ١٠٠%

() Joint Venture / Partnership Co. () سعودية أجنبية

() 100% Foreign () أجنبية ١٠٠%

4-Type of Business : النشاط التجاري :
Manufacturer of FRP (Fiberglass Reinforced Plastic) منتجات الفايبرجلاس بطريفة

5-Commercial Reg./License/Zakat : - ٥ - السجل التجاري / الرخصة / الزكاة :
Profiles & Gratings

Number : 2257027567 الرقم : ٢٢٥٧٠٢٧٥٦٧

Issue Date : 20/1/1423HD City : DAMMAM التاريخ : ١٤٢٣/١/٢٠ مدينة : الدمام

Zakat File Number : 2305 رقم ملف شهادة الزكاة : ٢٣٠٥

(Attach Copies of above certificates) (ترفق صور من الشهادات أعلاه)

6 - List of Companies represented by your firm : ٦ - الشركات التي يمثلها المورد (ترفق قائمة بأسماء الشركات)

Owner / Manager Name : اسم المالك / أو المدير
MR. ABDULLATIF M. AL-ARFAJ - OWNER
MR. MOHAMMED HAMDAN - GENERAL MANAGER
عبد اللطيف محمد العرفج

Signature and Stamp : التوقيع والختم :
P.O.BOX 10001 JUBAIL INDUSTRIAL CITY 31901
PROCUREMENT DEPARTMENT
إدارة المناقصات والمشتريات



KINGDOM OF SAUDI ARABIA
Royal Commission For Jubail & Yanbu
Directorate General For Jubail Project
Procurement Department



المملكة العربية السعودية
المهنة الملكية للمباني والبنية
إدارة العامة لمشروع الجبيل
إدارة العقود والمشتريات

نموذج تسجيل الموردين
Suppliers Registration Form

File Number: 12478 Date: JANUARY 21, 2006

1- Supplier Name : اسم المورد :
SAUDI PULTRUSION INDUSTRY المصنع السعودي لصناعة البترومين

2- Mailing Address :- عنوان المراسلة :-

P.O.BOX : 2531 City AL-KHOBAR ص.ب. : ٢٥٣١ المدينة : الخبر

City Code : 31952 الرمز البريدي : ٣١٩٥٢

Country SAUDI ARABIA الدولة : المملكة العربية السعودية

Telephone : 858-0404 Fax : 858-0202 هاتف : ٨٥٨-٤٠٤ فاكس : ٨٥٨-٢٠٢

www.saudi-pultrusion.com E-Mail : hamdan@saudi-pultrusion.com
brummel@saudi-pultrusion.com

3- Degree of Ownership : نسبة الملكية السعودية : ٣

() 100% Saudi (x) سعودية ١٠٠%

() Joint Venture / Partnership Co. () سعودية أجنبية

() 100% Foreign () أجنبية ١٠٠%

4-Type of Business : النشاط التجاري :
Manufacturer of FRP (Fiberglass Reinforced Plastic) منتجات الفايبرجلاس بطريفة

5-Commercial Reg./License/Zakat : - ٥ - السجل التجاري / الرخصة / الزكاة :
Profiles & Gratings

Number : 2257027567 الرقم : ٢٢٥٧٠٢٧٥٦٧

Issue Date : 20/1/1423HD City : DAMMAM التاريخ : ١٤٢٣/١/٢٠ مدينة : الدمام

Zakat File Number : 2305 رقم ملف شهادة الزكاة : ٢٣٠٥



(Attach Copies of above certificates) (ترفق صور من الشهادات أعلاه)


6 - List of Companies represented by your firm : ٦ - الشركات التي يمثلها المورد (ترفق قائمة بأسماء الشركات)

Owner / Manager Name : اسم المالك / أو المدير
MR. ABDULLATIF M. AL-ARFAJ - OWNER
MR. MOHAMMED HAMDAN - GENERAL MANAGER
عبد اللطيف محمد العرفج

Signature and Stamp : التوقيع والختم :
P.O.BOX 10001 JUBAIL INDUSTRIAL CITY 31901
PROCUREMENT DEPARTMENT
إدارة المناقصات والمشتريات



Observations: <ol style="list-style-type: none"> 1. Saudi Pultrusion Industry has brought in modern technology and machinery that manufacture Fiberglass Reinforced Plastic (FRP or GRP) which is alternative replacement and substitute to steel, aluminum and timber where long term performance in an aggressive and corrosive environment is required. 2. SPI is a newly company that started to produce FRP products for almost 1 year only. Offices, Factory Facilities, Equipment and machineries are also new. 3. Pultrusion pulls the continuous fiber reinforcement in roving or mat/roving form through a resin bath where each fibre is coated with a formulated resin. 4. The advantage and benefits of FRP products than steel and aluminum are: <ol style="list-style-type: none"> 4.1 Strength is up to 30% more tensile than mild steel and 50% more tensile strength than aluminum. 4.2 Better Insulation Qualities than steel. 4.3 Corrosion Resistant- It will not oxidise or corrode. 4.4 75% less lighter than steel. 4.5 Simply for Installation
Activities: <ol style="list-style-type: none"> 1. Meeting with the SPI Sales Manager, Production Manager and QA/QC Inspector regarding the Company Profile, Pultrusion Work Process, FRP Characteristics, FRP Advantages and Quality Assurance & Standards. 2. Drawings, Certificates, Quality Procedures, Inspection Records, Testing results and other documents review and discussions. 3. Presentation of Pultruded FRP products. 4. Computer presentation on how Pultrusion Fiberglass Reinforced Plastic (FRP) Process. 5. Factory visit and inspection of facilities, machines, equipment and raw materials used in pultrusion process such as resin, rovin, mat and veil. 6. Witnessed and inspection the mixing of resin and chemicals subject for FRP processing and production. 7. Witnessed and inspection of Production from chemicals and materials to finished products. 8. Visually and dimensionally inspection of the finished products as per required length, design, thickness and appearance.
Conclusion: <ol style="list-style-type: none"> 1. SPI has a consistency in the production of Fiberglass Reinforced Plastic (FRP) composite products, a Quality Assurance System is followed and maintained as per the procedures set in company's EN ISO 9001:2000 manual. 2. Guidelines in determining the dimensional and physical property capabilities and performance of the FRP products are as per ASTM standards. 3. Saudi Pultrusion Industry meets our standards for manufactured and supply of FRP Handrails and Ladders for Tasnee Ethylene Project. 4. SPI are accepted and approved in accordance with our Project requirements and specification.
<div style="display: flex; justify-content: space-between;"> <div> Reported by :  PAULO D. CANLAS JR. SEJ QA/QC Inspector </div> <div> Reviewed by :  H. I. JASON SEJ QA/QC Manager </div> </div>

 Job No: SC 2050	TASNEE ETHYLENE PROJECT	تاسني پتروكيماويات Ref No.: E-SEJ-SPI-QSR-0053									
Quality Surveillance Report											
Date of Visit : 04 Nov. 2006 Time : 0930 ~ 1230 HRS											
Company Details :											
<table> <tr> <td>Name :</td> <td>Saudi Pultrusion Industry</td> </tr> <tr> <td>Address :</td> <td>Member of Abdulatif Al-Arafaj & Brothers Holding Co. Al-Hassa Industrial Area Saudi Arabia</td> </tr> <tr> <td>Telephone :</td> <td>+966 3 534 2266</td> </tr> <tr> <td>Fax No. :</td> <td>+966 3 534 2299</td> </tr> </table>			Name :	Saudi Pultrusion Industry	Address :	Member of Abdulatif Al-Arafaj & Brothers Holding Co. Al-Hassa Industrial Area Saudi Arabia	Telephone :	+966 3 534 2266	Fax No. :	+966 3 534 2299	
Name :	Saudi Pultrusion Industry										
Address :	Member of Abdulatif Al-Arafaj & Brothers Holding Co. Al-Hassa Industrial Area Saudi Arabia										
Telephone :	+966 3 534 2266										
Fax No. :	+966 3 534 2299										
Contact Person :											
Mr. Brummel A. Esperancilla Sales Manager											
Scope of Work :											
Manufacture and Supply of pultruded Fiberglass Reinforced Plastic (FRP) Ladder and Handrail for Cooling Tower - Tasnee Ethylene Project Jubail Saudi Arabia.											
Purpose of Visit :											
<ol style="list-style-type: none"> 1. Factory Inspection and Surveillance for the manufacturing of pultruded FRP Products such as Handrail System & Ladders, Prefab Walkways & Platforms, Gratings & Support, Cooling Tower Components, Safety Cages, Planks, Profiles and Brackets. 2. To check and evaluate general quality requirements about materials, design, process, inspection, test, data items, packaging or shipping and implementation as per project standards and specifications. 											
Visitor:											
<table> <tr> <th>Name</th> <th>Company</th> <th>Position</th> </tr> <tr> <td>Mr. Ashpak Mian</td> <td>IMT</td> <td>QA/QC Inspector</td> </tr> <tr> <td>Mr. P. D. Canlas Jr.</td> <td>SEJ</td> <td>QA/QC Inspector</td> </tr> </table>			Name	Company	Position	Mr. Ashpak Mian	IMT	QA/QC Inspector	Mr. P. D. Canlas Jr.	SEJ	QA/QC Inspector
Name	Company	Position									
Mr. Ashpak Mian	IMT	QA/QC Inspector									
Mr. P. D. Canlas Jr.	SEJ	QA/QC Inspector									



الرقم
التاريخ
المرفقة



المنطقة الشرقية
وزارة الشؤون البلدية والقروية
إمارة المنطقة الشرقية

وكالة التعمير والمشاريع
إدارة الجودة

الموضوع: بخصوص تأهيل المصنع السعودي للبترول

المحترمين

السادة / المصنع السعودي لصناعة البترول

ص ب ٢٥٣١ الخبر ٣١٩٥٢ - تليفون ٣٨٤٧٧٦١٢ - فاكس ٣٨٤٧٧٦١٤

السلام عليكم ورحمة الله وبركاته

إشارة إلى خطابكم رقم SPI/٣٣٥ الوارد إلينا بتاريخ ١٤٣٤/٠٩/٠٦ بخصوص طلب

تأهيل مصنعكم لتوريد مواد منتجات الفايبر جلاس وتطبيقاتها كمشال (المشايات الأرضية -

والأرضيات - الدرابزين - السلالم) وإلى تنسيقكم وترتيبكم لزيارة المصنع للتأكد من الجودة

ومطابقة المواصفات والتي تمت بتاريخ ١٤٣٤/١٠/٢٢.

عليه، نفيدكم بأنه لا مانع من اعتماد مصنعكم لتوريد مواد منتجات الفايبر جلاس

وتطبيقاتها كمشال (المشايات الأرضية - والأرضيات - الدرابزين - السلالم) لمشاريع أمانة

المنطقة الشرقية ويمكن التمسك بين المقاولين والشركة على أن يقوم المقاولون بتقديم اعتماد

مواد منتجات الفايبر جلاس وتطبيقاتها كمشال (المشايات الأرضية - والأرضيات - الدرابزين -

السلالم) حسب توافرها مع المواصفات لكل مشروع وهذا الاعتماد لمدة سنة من تاريخه كما يحق

للأمانة إلغاء هذا الاعتماد في حالة مخالفة الشروط والمواصفات الفنية.

ولكم تحياتي،،،

مدير إدارة الجودة

م/ خالد بن ناصر السويديان

ص.ب. ٢٨٧٠ - الدمام ٣١١٤٦ - تليفون ٣٨٤١٠٠٠ - فاكس ٣٨٤١٩٧٧
P.O.Box 2870 - Dammam 31146 - Tel.: 3341000 - Fax: 3339977 - www.s-sag.gov.sa



Date: 28 May 2006

Certificate of Conformity

To whom it may concern:

This is to confirm that the materials manufactured and supplied by Saudi Pultrusion Industry against our Purchase Order No. 3247 and 3248 dated 14 Nov. 2005, are in accordance with our requirements and specification.

We are very much satisfied in dealing with Saudi Pultrusion Industry for their supply of material.

Best regards,
ZAMIL LADDER FACTORY

Binu Cherian
Plant Manager



C.R. 205100274 / 046
Paid Capital S.R. 2,000,000
Industrial License No. 9008
Dated 19/12/1403

ص.ب. ٢٨٧٠ - الدمام ٣١١٤٦
رأس المال المدفوع ٢,٠٠٠,٠٠٠ ريال
ترخيص صناعي رقم ٩٠٠٨
بتاريخ ١٩/١٢/١٤٠٣ هـ



P.O. Box 3408 - Dammam 31471
Kingdom of Saudi Arabia
Tel.: +966 (03) 847 9544
Fax: +966 (03) 847 1453

ص.ب. ٣٤٠٨ - الدمام ٣١٤٧١
المملكة العربية السعودية
تلفون: +٩٦٦ (٠٣) ٨٤٧ ٩٥٤٤
فاكس: +٩٦٦ (٠٣) ٨٤٧ ١٤٥٣



E-mail: ladders@zamiladder.com
Website: www.zamiladder.com

To : Saudi Pultrusion Industries

Attn: General Manager

Fax No.: 013 534 2299

Tel No.: 013 534 2266



Alfanar Construction Co. (Bena)

POSTAL ADDRESS: P. O. BOX 15203

Jeddah 21422 – K.S.A

Tel: 0126911687x101 Fax: 012 4945468

Mobile: 056 342 0060

E-Mail: Alaa.saad@alfanar.com

Our Ref : ALFCO/SPI/01/14

Date : 20/09/2014

PROJECT: Jeddah R.O. -III Project.

Subject: Material Acceptance

Dear Sir,

With great pleasure we inform you that your FRP/GRP material have been accepted for our R.O. Jeddah III Project.

The approval we received in for material that we use in Grating, Handrail, Ladder and supports it have been proven to be equal, if not exceeding the specification of the required material.

We thank you for your good response on delivery and we hope to see your factory prosperous and producing more profiles.

Thank you and best regards,

Alaa Saad
Executive Manager, Projects
Al Fanar Construction Co.

[Signature]
20/09/14



**PROJECTS
REFERENCE**



S. No.	Project Title	Client Name/ End User	Scope of Work/Specification	Year of Supply	Role in Supply
1	Dammam, Saudi Arabia	Zamil Ladders	FRP Ladders Profiles	Nov.2005	E/M/S
2	SWCC Project, Jeddah, Saudi Arabia	Saudi Composites Saline Water Conversion Corp.	Handrails/Ladder profiles	Feb. 2006	M/S
3	Grid Station, Bahrain	Al Johi Fiberglass	Gratings	March 2006	M/S
4	Infrastructure Proj., Jubail, Saudi Arabia	Al Khodari & Sons Royal Commission	Platform, Handrails, Ladders	May 2006	E/M/S
5	Desalination Plant, Jubail, Saudi Arabia	Al Mabani/Saudi Condreco Saline Water Conversion Corp	Gratings	May 2006	M/S
6	Infrastructure Proj. Jubail, Saudi Arabia	Al Harbi Contg. Royal Commission	Platform, Handrails, Ladders	May 2006	E/M/S
7	Dammam, Saudi Arabia	Hamza Fatayerji Est.	Handrails	June 2006	M/S
8	Samref Project, Yanbu, Saudi Arabia	Fluor Arabia Ltd. Saudi Aramco	Platform, Handrails, Ladders	August 2006	E/M/S
9	Infrastructure Proj., Jubail, Saudi Arabia	Al Ertifaa Const. Co. Ltd. Royal Commission	Ladders	Sept. 2006	E/M/S
10	Bahrain	BFG Commercial	Handrails	Sept. 2006	M/S
11	Desalination Plant, Jubail, Saudi Arabia	Almacon Saline Water Conversion Corp.	Gratings	Nov. 2006	M/S
12	Jubail, Saudi Arabia	Al Yussr Townsend	Gratings	Nov. 2006	M/S
13	DIP District Cooling Tower, Dubai	SPIG SPA	Cooling Tower Components	Nov. 2006	M/S
14	Dammam, Saudi Arabia	ATC Specialized Welding Co. Saudi Aramco	Gratings	Dec. 2006	M/S
15	Tasnee Project, Jubail, Saudi Arabia	Samsung Co. Ltd. Sabic/Royal Commission	Handrails, Ladders	Dec. 2006	E/M/S
16	Palm Jumeriah, Dubai	Hamon Thermal (France)	Platform, Handrails, Ladders, Gratings	Dec. 2006	M/S
17	Al Khobar, Saudi Arabia (Qatar Proj.)	Eastern Gate	Cable Tray Component	Dec. 2006	M/S
18	Road/Infrastructure Proj. Jubail, KSA	Al Harbi Contracting Co. Ltd. Royal Commission	FRP Reebar	Jan. 2007	S
19	Desalination Plant, Jubail, Saudi Arabia	Saline Water Conversion Corp.	Handrails, Ladders/Platform	Feb. 2007	E/M/S/I
20	Hidd Desal/Power Plant, Bahrain	G. P. Zackaraides	Gratings, Handrail and Safety Cage	Feb. 2007	M/S
21	Jana Expansion Project, Jubail	Jubail Operation & Maintenance	Gratings	March 2007	M/S
22	Sewage Treatment Plant, Muscat	Al Dastoor Trading & Contg.	Grating, Handrail, Platform & Ladder	March 2007	E/M/S
23	Doha, Qatar	Al Muftah Fibregalss Co.	FRP Profiles (tubes & rungs)	April 2007	M/S
24	RT Sea Island Project (offshore)	Mohammad Al Mojil Group Saudi Aramco	Gratings	May 2007	M/S
25	Berri Plant, Drainage Cluster System	Al Inassar Trading & Contg. Saudi Aramco	Gratings	May 2007	M/S
26	Waste Treatment Facilities Upgrade Jeddah Refinery & Marine Area	M. R. Al Khatlan Saudi Aramco	Ladder & Safety Cage	May 2007	M/S
27	Dhahran Housing Drainage System	Bader Al Hussein Est. Saudi Aramco	Gratings	July 2007	M/S
28	KAIA Airport, Jeddah	Hamon Thermal Europe Y.B.A. Kanoo	Structural Profiles for Cooling Tower	Aug. 2007	M/S
29	Battery Charging Area Dhahran	Green Top Contracting Co. Saudi Aramco	Gratings	Oct. 2007	M/S
30	Jubail Infrastructure	Al Khodari & Sons Royal Commission	Handrail System	Oct. 2007	M/S
31	Sewage Treatment Plant - Rahima	Nesma Al Fadl Saudi Aramco	Platform, Gratings, Handrails & Ladder	Nov. 2007	E/M/S
32	Bahrain Petroleum Company	Project Const. Co. Bahrain Bapco	Decorative Fencing	Nov. 2007	E/M/S



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33	Amiantit, Oman	Oman	Ladder	Dec. 2007	M/S
34	Cooling Towers	Alasco (Al Dossary) Saudi Aramco	Gratings & Checkered Plate	Dec. 2007	M/S
35	Hidd Power Plant, Bahrain	G.P. Zackaraides, Bahrain		Dec. 2007	M/S
36	Jubail C31R Infrastructure	Al Harbi Contg. Co. Royal Commission	Handrail, Ladder and Platform	Jan. 2008	E/M/S
37	Zamil Tower Galvanizing Plant	Zamil Steel	Grating	Feb 2008	M/S
38	Cooling Towers Structures	Sanpco, Iran	FRP Profiles	March 2008	M/S
39	Cooling Towers Facilities	University of Petroleum & Mineral Dharan	Gratings and support	March 2008	E/MS
40	Industrial Facilities	Jubail Chemical Industries	Ladders, Handrails & Platform	March 2008	E/M/S
41	Al Waha Project	Al Khodari Jubail	Ladder, Handrail & Platform	April 2008	E/M/S
42	Aramco, Abaqaiq	Saleh Al Massoud (Asamco) Saudi Aramco	Ladder	April 2008	M/S
43	Concrete Rehabilitation Work (SWCC) Valve Pit Covers	Saudi Condreco/Al Mabani Jubail	Gratings/Checkered Plate	May 2008	E/M/S
44	Bulk Plant Refinery, Riyadh	Issam Kabbani Saudi Aramco	Ladder & Safety Cage	May 2008	E/M/S
45	Bahrain	Bahrain Fibreglass Group	Handrail System	June 2008	M/S
46	Khurais Crude Oil Project	Modern Arab Const./Kettaneh Saudi Aramco	Gratings	June 2008	M/S
47	Sewage Treatment Plant - Udaliyah	M. S. Al Suwaidi Saudi Aramco	Gratings	July 2008	M/S
48	Desalination Plant, Jubail - Marafic	Huta Marine	Ladder and Safety Cages	July 2008	M/S
49	Sanitary Project - Jeddah	Shairco	Ladder/Safety Cage/Handrails	July 2008	M/S
50	FRP Bench	Issam Kabbani	Projefile, oval shape	July 2008	M/S
51	Sewage Project - Bahrain	BFG Commercial Services	Ladder	August 2008	M/S
52	Desalination Plant, Jubail - Marafic	Kin Jin Kan Contg. Co.	Gratings	Sept. 2008	M/S
53	Manefa Project & Khurais Common Fac	Ahmad Ali Bin Ali	Ladder & Support Post	Jan. 2009	M/S
54	Al Hassa Irrigation	Al Hassa Irrigation Authority	Grating & Handrail	Jan. 2009	M/S/I
55	KFUPM Facilities - Dammam	King Fahad Univ. Pet. & Min.	Grating & Platform	Jan. 2009	M/S/I
56	Sewage Treatment Plant - Udhaliyah	M.S. Al Suwaidi	Grating, Platform & Ladder	Feb. 2009	M/S
57	Rabigh Cable Factory	Nesma & Partners	Ladder	Feb. 2009	M/S
58	Shaybaa Project	Nesma & Partners	Heavy Duty Grating/Checkered Plate	Feb. 2009	M/S
59	Sewage Treatment Plant - Dhahran	M. S. Al Suwaidi Saudi Aramco	Ladder, Platform, Handrail & Checkerd Plate	Feb 2009	M/S
60	Sanitary Works - Jeddah	Shairco	Ladder and Platform	Mar 2009	M/S
61	Aminatit - Oman	Amiantit	Ladder & Profiles	Mar 2009	M/S
62	Cooling Tower - Dubai	Hamon Adearest	Platform/Staircase/Ladder	Mar 2009	M/S
63	Chemanol Factory	Naser Al Hajri	Platform/Ladder/handrail	Apr-09	M/S
64	Sewage Treatment Plant - Safaniya	M. S. Al Suwaidi Saudi Aramco	Ladder	Apr-09	M/S



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65	Jubail Infrastructure Project	Azmeel	Platform/Handrail/Ladder	Apr-09	M/S
66	Maaden - Jubail	Samsung	Grating	May-09	M/S
67	Maader - Jubail	Gama	Grating & Curve Angle	May-09	M/S
68	KFUPM - Dhahran	KFUPM	Grating/Platform	May-09	M/S
69	Abqaiq Refinery	Salem Duwaim Est. Aramco	Grating	June'09	M/S
70	Al Durr Desal Plant - Bahrain	G. P. Zackarades	Handrail, Ladder & Safety Cage	June'09	M/S
71	Jubail Infrastrucrue Co2	Al Harbi Contg. Co. Ltd.	Ladder, Handrail & Grating	July'09	M/S
72	Kayyan Project - Jubail	Sinopec	Grating	July'09	M/S
73	Infrastructure Project - Jubail	Saudi Bin Laden	Handrail	Aug.'09	M/S
74	Princess Nhoua University - Riyadh	El Seif/CCC	Ladder & Safety Cage	Nov.'09	M/S
75	Sewage Treatment Plant - Heet Riyadh	Al Khorayef	Grating	Nov.'09	M/S
76	Sasref (Shell) Cooling Tower - Jubail	CBI Llumus	Ladder, Handrail & Checkered Plate	Nov.'09	M/S
77	Zamil Galvanizing Plant - Dammam	Zamil Steel	Grating, Handrail & Checkered Plate	Dec.'09	M/S
78	Sewage Treatment Plant - Safaniya	M. S. Al Suwaidi	Ladder	Dec.'09	M/S
79	Maaden Project - Ras Al Zour	Nesma & Partners	Grating	Dec.'09	M/S
80	Al Uqair Beach Resort	Amana Al Hassa	Platform, grating, handrail	Jan.'10	M/S/I
81	North Park Complex - Dhahran	Al Yamama Company Saudi Aramco	Grating	Jan.'10	M/S
82	National Gas Company	Al Saamani Co.	Special profiles for gas tank	Feb.'10	M/S
83	Bahrain Petroleum Co.	Al Mameri Contg.	Handrail	Feb.'10	M/S
84	Manifa Project	Modern Arab. Const. (Aramco)	Grating	Mar'10	M/S
85	Jubail 072 C31R	Al Harbi Contg.	Ladder	Mar'10	M/S
86	Sahara Project Jubail	Sinopec	Grating	Mar'10	M/S
87	Sewage Treatment Plant - Rabigh	M.R. Al Khatlan (Aramco)	Grating, handrail, ladder	Mar'10	M/S
88	Kaust - Dammam	S. Al Hareth (Aramco)	Handrail	Jun'10	M/S
89	SWCC - Jeddah	Abdullah al Zamil	Grating, handrail, ladder	June'10	M/S
90	Oman	Amiantit	Ladder	July'10	M/S
91	Sewage Tratement Plant	ICDOC	Handrail	July'10	M/S/I
92	Jubail Infrastructure Project	Al Oasis Contg.	Grating Platform	Aug'10	M/S/I
93	Jubail Infrastructure Project	Saudi Tumpane	Ladder/grating	Aug'10	M/S
94	Sewage Treatment Plant - Jeddah	Aziz co. National Water Company	Handrail, ladder, grating	Aug'10	M/S
95	Cooling Tower	Composites Solutions	Grating	Aug'10	M/S
96	Ras Al Zawr Project	Jes Allianz	Ladder	Sept.'10	M/S



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97	SWCC - Jeddah	Mitsubishi Heavy Inds.	Handrail/ladder	Sept.'10	M/S
98	Aramco Project	Ammu Steel	Grating	Sept.'10	M/S
99	Chloroviny Project	Abdullah Al Khalifa	handrail, grating	Sept.'10	M/S
100	Cooling Tower - Rastanura	Saudi Aramco	Corrugated Sheet	Oct'10	M/S
101	Aramco Housing Projects	Rezayat co.	Grating	Oct'10	M/S
102	Aramco Housing Projects	Arnout Contg. co.	Grating	Oct'10	M/S
103	Princess Nougha University Riyadh	El Seif/CCC	Ladder & Safety Cage	Oct'10	M/S
104	Infrastructure Project Jubail	Azmeel Contg. Co.	Ladder and grating	Nov.'10	M/S
105	Chloroviny Project Jubail	Zamil Steel	Grating and handrail	Dec.'10	M/S
106	SEC Project	Al Dahiel Al Malfi	Grating	Dec.'10	M/S
107	Private Factory	Metals Engineering co.	Grating	Dec.'10	M/S
108	Jeddah Project	Jubar International	Grating and handrail	Jan.'11	M/S
109	Sewage Treatment Plant - al Kharj	Al Khorayef Company National Water Company	Handrail and grating	Jan.'11	M/S
110	Jubail Infrastructure Project	Saudi Bin Laden	Handrail and ladder	Feb.'11	M/S
111	EXPEC Auditorium	Issam Kabani - Aramco	Grating	Mar'11	M/S
112	Water Tank Facilities	Ministry of Agriculture	Grating,handrail and ladder	Mar'11	M/S/I
113	JER Project Jubail	Saudi Amana Contg. co.	Grating	Apr'11	M/S
114	MEW Project Kuwait	3B General Contg.	Gratiing, handrail and ladder	Apr'11	M/S
115	Cooling Tower - Dhahran	Johnson Control (Aramco)	Grating	Apr'11	M/S
116	Private Factory - Bahrain	Faba Contg.	Various FRP profiles	Apr'11	M/S
117	Qatar Project	Al Muftah Fibreglass Co.	Various FRP profiles	May'11	M/S
118	SEPCO Rabigh Power Plant	Mothib Afnan Al Nafey	Grating	May'11	M/S
123	STP Hayer Project - Riyadh	Aziz Company National Water Company	Handrail, grating and Ladder	Jun'11	M/S
124	SWCC Project Jeddah	Al Fanar Co.	Platform, grating and Handrail	Jun'11	M/S
125	Jeddah Mainlines of waste water	Al Harbi Trdng. & Contg. National Water Company	Platform, Handrail, Ladder & Cages	July'11	M/S/I
126	Bapco Water Screen Barrier	Raffa Const. Co.	Security Barrier	July'11	M/S
127	Princess Noura University Riyadh	CCC El Seif	Ladder and cages	July'11	M/S
128	Ladder Factory	Zamil Ladder	Profiles for Ladder	Aug'11	M/S
129	Marafiq Projedt Jubail	Al Manar	Checkered Plate & Handrail	Sept'11	M/S
130	Aramco Bulk Plant Rabigh	M. S. Al Suwaidi	Ladder	Sept'11	M/S
131	Fibreglass Factory - Oman	Amiantit Oman	Profiles for Ladder	Sept'11	M/S
132	Fibreglass Factory - Australia	Wagner	Profiles for handrail	Sept'11	M/S



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133	Beverage Plant	Mohammad Sayeed Co.	Grating	Oct'11	M/S
134	Infrastructure Project Jubail	Azmeel	Handrail & Ladder	Oct'11	M/S
135	Choloviny Project	Yanbu Steel Co.	Grating	Oct'11	M/S
136	Private Recreational Facility	Isshamaquatic	Grating	Oct'11	M/S
137	WWTP Jeddah Project	Al Fanar	Handrail, Grating Corrugated Sheet	Oct'11	M/S
138	SWCC project Jeddah SRO III	Saudi Archirodon	Grating, handrail, corrugated sheet	Octo'11	M/S
139	Jetty Refinery Jubail	Saudi Amana	Grating	Oct'11	M/S
140	AlKhomra Sewage Treatment Plant	Abujadayel Co. National Water Company	Handrail	Oct'11	M/S
141	Rabigh Power Plant	Sepco III	Grating	Nov'11	M/s
142	Bapco Bahrain	Rapco/Bapco	Barrier	Nov'11	M/S
143	Jubail Infrastructure Project	Khonaini International	Ladder	Nov'11	M/S
144	Sadaf Jubail	Saad Al Othman	Ladder	Dec'11	M/S
145	Infrastructure Project Jubail	Saudi Tumpane/Azmeel	Ladder	Dec'11	M/S
146	Maaden - Arar Project	Weng Fu	Grating	Dec'11	M/S
147	Wastwater conveyor - Riyadh	Tumpane Jubar Joint Venture National Water Company	Handrail and Grating	Dec'11	M/S/I
148	Sewage Treatment Plant North Jeddah	Aziz Company	Handrail/grating Ladder	Jan'12	M/S
149	Sewage Treatment Plant - Bapco Bahrain	G. S. Engineering Co.	Grating, Handrail & Ladder	Jan'12	M/S
150	Power Station - Ras Alaffan - Qatar	Rezayat Co. - Qatar	Grating	Feb'12	M/S
151	Maaden Project, Ras Al Khair	Abdullah Al Khodari	Ladder	Feb'12	M/S
152	Sadara Project, Jubail	Sinopec	FRP Reebar	Feb'12	M/S
153	Sewage Treatment Plant - Bahrain	Mechanical Services Co. Ltd.	Handrail and Ladder	Feb'12	M/S
154	Sadara Project, Jubail	Mohd. Al Suwaillem	FRP Reebar	Feb'12	M/S
155	Marafiq Project, Jubail	SETE	Ladder and Grating	Feb'12	M/S
156	Water Inlet Barrier - Bapco Bahrain	Bahrain Petroleum Co.	FRP SecurityBarrier	Mar'12	M/S
157	Desalination Plant - Jeddah	Al Zamil Metal Works	Grating, Handrail Ladder	Mar'12	M/S
158	Sadara Project, Jubail	Ahamad Ali Bin Ali	FRP Reebar	Mar'12	M/S
159	Sewage Treatment Plant Jeddah	Al Fanar	Handrail Grating Ladder	Apr'12	M/S
160	STP Ras Al Khair Project	Borim	Handrail	May'12	M/S
161	ChlorivinyI Project - Jubail	Boo Won Lee Const. Co.	Grating	Apr'12	M/S
162	Marafiq Project, Jubail	Nasser Al Hajri	Grating & Handrail	Jun'12	M/S
163	Jubail Infrastructure Project - RC	AlKhonaini International	Ladder	Jul'12	M/S
164	Desalinatoin Plant - Jeddah	Assad Saed For Const.	Grating/Handrail	Sept'12	M/S



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165	NWC Sewer Project Jeddah	Hyo Joung Const.	Handrail	Sept'12	M/S
166	ChlorivinyI Project Jubail	Daelim Co.	Grating/Handrail	Oct'12	M/S
167	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Grating/Handrail/Ladder	Nov'12	M/S
168	HQPB Energy Center Jeddah	Al Aman Co.	Grating	Nov'12	M/S
169	Ras Al Khair Project	Saudi Archirodon	Handrail/Ladder/Grating	Nov'12	M/S
170	STP Al haddad Project	Azis Co.	Handrail/grating/ladder	Nov'12	M/S
171	Desalination Plant Jeddah	Abu Jadayel	Grating/Handrail	Dec'12	M/S
172	Desalination Plant Jeddah	Doosan	Grating/Handrail/Ladder	Dec'12	M/S
173	RasAl Khair Power/Desal Plant	Assad Saeed For Const.	Handrail/Grating/Ladder	Jan'13	M/S
174	Sadara Project Jubail	A & Khalifa Co.	Grating/Handrail	Feb'13	M/S
175	Marafiq Yanbu	Earthech Co.	Grating/Handrail	Mar'13	M/S
176	Sewage Treatment Plant Taif	Systech	Handrail/Grating	Mar'13	M/S/I
177	Water Tank Project Qatif	Ministry of Agriculture	Grating Handrail/Ladder	Mar'13	M/S/I
178	Qurrayah Power Plant	Hassan Allam Const.(Samsung)	Grating & Curved Angle	Apr'13	M/S
179	Ras Al khair Project	Saudi Archirodon	Grating/Handrail/Ladder	Apr'13	M/S
180	King Abdullah University	Salem al Hareth	Grating &Checkered Plate	Apr'13	M/S
181	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Grating/Handrail/Staircase	May'13	M/S
182	RO Desalination Plant 3 - Jeddah	Doosan	Grating/Handrail/Ladder/stair tread	May'13	M/S
183	STP - Salbokh	Suido Kiko	Grating	May'13	M/S
184	JODP Phase 1 Infrastructure - Makkah	Nesma & Partners	Ladder and Ladder with safety cage	Jul'13	M/S
185	Power & Desalination Phase 1 Ras Al Khair	Assad Said	Gratings/ Profiles	Jul'13	M/S
186	Jabar Omar Development Proj - Makkah	Saudi Arabian Baytur	Ladder	Aug'13	M/S
187	Desalination Plant - Yanbu	SWCC	Gratings	Aug'13	M/S
188	Power Plant II - Rabigh	Kettaneh Construction	Handrails	Aug'13	M/S
189	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Grating/Handrail/Ladder/Platform	Aug'13	M/S
190	South Jeddah Pump Station	Abduljadayel Co. for Cont National Water Company	Grating	Aug'13	M/S
191	IWTP8 - Marafiq - Jubail	SETE	Gratings/Platform/Profiles	Aug'13	M/S
192	STP - Al Hayer	Aziz Co National Water Company	Gratings/Profiles	Sep'13	M/S
193	Expansion of Jubail 2 Product Pipeline	Azmeel Tumpane	FRP Reebars	Sep'13	M/S
194	Sadara Project Jubail	A & Khalifa Co.	Ladder/ Ladder with safety cage	Sep'13	M/S
195	Marafiq - Yanbu	Technical Contracting Comp	Gratings	Oct'13	M/S
196	Shedgum - Saudi Aramco	Veolia Water	Gratings/Handrails	Nov'13	M/S



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197	Independent Power Plant - Qurayyah	Samsung C & T	Handrails	Dec'13	M/S
198	Circle Power Plant - Shoaiba II	Saudi Archirodon	Gratings	Dec'13	M/S
199	Power Plant II - Rabigh	Kettaneh Construction	Handrails	Dec'13	M/S
200	O&M NPOC,Dharan- Saudi Aramco	Al Yamama Company	Gratings/Handrail/Platform	Jan'14	M/S
201	Site Dev of Area "B" stage1- Ras Al Khair	Mofarreh Marzouq Al Harbi	FRP Reebars	Jan'14	M/S
202	Central Utility Comp - Haram Exp Proj	Saudi Bin Ladin Group	Ladders/ Ladders with Safety cage	Jan'14	M/S
203	Strategic reservoir- Briman Jeddah	Al Muhaidib Contracting	Grating/Handrail/Ladder/Platform	Jan'14	M/S
204	Khumra Project	Hassan Abdulkader AlFadi Comm. Serv. Co. Ltd	Gratings/Handrail/Ladder/Platforms	Feb'14	M/S
205	SADARA Chem-1 Project, Jubail	Nasser S. Al-Hajri Corporation	Molded Gratings	Feb'14	M/S/I
206	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Grating/Handrail/Ladder/Platform	Mar'14	M/S
207	Water & Power Projects	Water & Power Projects	Handrails system	Mar'14	M/S
208	Ras Al Khair Desalination Project	Assad Said for Contracting	Gratings/Ladder with safety cage	Mar'14	M/S
209	Saudi Qurayyah IPP	Samsung C & T	Handrail system	Mar'14	M/S
210	KAIA Jeddah Airport	Hamon Cooling Tower	Ladder with safety cage/ Platform	Apr'14	M/S
211	SAMAPCO Plant	Mechanical Services Co. Ltd. Petrochemicals Company	Gratings	Apr'14	M/S
212	Rabigh Power Plant II	Kettaneh Construction	Handrails system	Apr'14	M/S
213	HARAM Expansion Project	Saudi Bin Landin Group	Molded Gratings	Apr'14	M/S
214	Ras Al Khair Project	Al Harbi Trading & Cont Co	FRP Reebars	Apr'14	M/S
215	Water Tank Project Qatif	Ministry of Agriculture	Grating Handrail/Ladder	Apr'14	M/S
216	Sadara Project Jubail	A & Khalifa Co.	Grating/Handrail	Apr'14	M/S
217	RCJ Bufferzone Projects	Al Shalawi Int'l Holding Co	Ladders	Apr'14	M/S
218	Sadara Project Jubail	A & Khalifa Co.	Grating/Handrail	May'14	M/S
219	Fish Hachery Project - Ras Abu Ali	Al Hammam Company	Grating with checkered plate/ Profiles	May'14	M/S
220	Ras Al Khair Project	Nesma Trading Company	Ladder with safety cage	May'14	M/S
221	Al Khumrah Project	Abuljadayel Co	Grating with checkered plate	May'14	M/S
222	HARAM Expansion Project	Saudi Bin Landin Group	Molded Gratings	May'14	M/S
223	Jalmuda Jubail Project (716-C02R)	Azmeel Contracting	Ladders	Jun'14	M/S
224	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Grating/Handrail/Ladder/Platform	Jun'14	M/S
225	ARCC Rabigh IWSP Project	Al Rushaid Construction Co Ltd	FRP Sheet Cover system	Jun'14	M/S
226	Egypt Project	Mahmood Saeed Beverage Cans & End Industry Co Ltd	Molded Gratings	Jun'14	M/S
227	Al Mataf Project - Makkah	Saudi Bin Landin Group	Gratings/ Platforms/ Handrails/	Jun'14	M/S
228	SWC, Royal Commission - Jubail	China Communications Const Company Ltd	Gratings/ Checkered plate cover Ladders/ Ladder with safety cage	Jul'14	M/S



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229	Saudi National Guards - Housing Project	AXAL Arabia Construction	Ladders	Jul'14	M/S
230	Sadara Project Jubail	A & Khalifa Co.	Ladders	Jul'14	M/S
231	KAIA Project	Consolidated Contractors Co.	Gratings	Jul'14	M/S
232	Yanbu 3	Sungbo C&E Co. Ltd	Molded gratings	Jul'14	M/S
233	KAIA Project	Consolidated Contractors Co.	Ladders	Aug'14	M/S
234	STP - Al Khumrah 3 Project	Abuljadayel Co.	Gratings/ Handrails	Aug'14	M/S
235	Haram Expansion Project	Saudi Bin Landin Group	Gratings	Aug'14	M/SI
236	Sadara Project Jubail	A & Khalifa Co.	Gratings	Sep'14	M/S
237	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Grating/Handrail/Ladder/Platform	Sep'14	M/S
238	SADARA SWRO SIDEM project	KCC Kil Jin Kang	Gratings	Oct'14	M/S
239	SADARA SWRO Desalination Plant Proj	Saudi Friends Engr & Const	Gratings/ Profiles	Oct'14	M/S
240	South Jeddah Project	Abuljadayel Co.	Molded Grating/ Checkered Plate	Oct'14	M/S
241	Yanbu Ph3 - Package "D" PJT	SAMBO Saudi Arabia SWCC Yanbu	FRP Covers/ Profiles	Dec'14	M/S
242	Ras Al Khair	Al Jazea Cont & Trading Royal Commission	Gratings/Ladder/ Handrail/Checkered Plate	Dec'14	M/S
243	Jubail Home Ownership Project	Al Shalawi Int'l Holding Co Royal Commission	Ladders/ Profiles	Dec'14	M/S
244	RO Plant Phase III - Jeddah	Al Fanar Co. SWCC Jeddah	FRP Corrugated Sheets	Dec'14	M/S
245	Strategic Reservoir - Briman Jeddah	Al Muhaidib Contracting National Water Company	Ladder/ Platform/ Molded Grating	Dec'14	M/S
246	P&C Sea Water Pump Station (RC 201-C01)	Faisal Electro Mechanical Co Royal Commission	Gratings/ Ladder/ Handrails	Dec'14	M/S
247	National Water Company, Riyadh	Dar Al Riyadh National Water Company	Gratings/ Ladders/ Profiles	Jan'15	M/S
248	Mutrafiah Projects	Mohammed A. Al Swailem Co	Ladders	Jan'15	M/S
249	Haram Expansion Project	Saudi Bin Ladin Group Ministry of Finance	Ladders	Jan'15	M/S
250	Rabigh Projects	Al Ta'Afuf Company National Water Company	Gratings/ Ladder with safety cage Platform/ Handrails/ Profiles	Feb'15	M/S
251	Desalination Plant - Jubail	Saline Water Conversion Corp SWCC Jubail	Gratings	Feb'15	M/S
252	Yanbu Power Plant	Technical Contracting Co Marafiq Yanbu	Handrails/ Profiles	Feb'15	M/S



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253	Al Mataf Project - Makkah	Saudi Binladin Group	Pultruded Gratings	Mar'15	253
254	King Abdulaziz Int'l Airport Project	Consolidated Cont Co	Ladder	Mar'15	254
255	Khumrah 3, Jeddah Project	Abuljadayel Co	Pultruded Gratings/ Handrails	Mar'15	255
256	Jamal Omar Dev't Project, Makkah	Drake & Scull Const KSA	Ladder/ Platforms	Mar'15	256
257	STP Al Hayer Project	Aziz Company	Molded Gratings/ Profiles	Apr'15	257
258	Jeddah South Thermal Power Plant	Saudi Archirodon LTD	Pultruded Gratings/ Handrails/ L	Apr'15	258
259	Desalination Plant Marafiq Jubail	Al Fatah Water Co.	Pultruded Gratings/ Handrails/S Structural Support	Apr'15	259
260	Haram Expansion Project - Makkah	Saudi Binladin Group	Pultruded & Molded Gratings/La	Apr'15	260
261	Marafiq Housing Project - Jubail	Al Latifia Trading	Ladder	Apr'15	M/S
262	North Park Al-Midra, Aramco Project	Al Yamama Company	Checkered Plate/ Platforms	May'15	M/S
263	Shaybah RIC Expansion Project- Aram	Mohammad Al Mojil Group	Grating/ Staircase/ Handrail/ La Checkered Plate/ Structural Support	May'15	M/S
264	Jamal Omar Dev't Project Ph4, Makkah	Ruwal Civil Construction	Ladder with safety cage/ Platfor	May'15	M/S
265	King Abdulaziz Int'l Airport Project	Golden Advance Company	Molded Grating/ Handrail/ Ladder Staircase/ Structural Support	May'15	M/S
266	Jamal Omar Dev't Project Ph2, Makkah	Saudi Arabian Baytur	Ladder	May'15	M/S
267	Defence Project, RC Jubail	Al Kifah Contracting	Ladder	May'15	M/S
268	Yanbu Desalination Plant	Saline Water Conversion Cor	Handrail/ Corrugated Sheets	Jun'15	M/S
269	Sabkha Sump Pump Project	Al Hassa Irrigation & Drainag Authority	Pultruded Gratings	Jun'15	M/S



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270	SWCSR works Project - Ras Al Khair	PCMC Royal Commission	Gratings/ Handrail/ Ladder	Jun'15	M/S
271	SWCC Yanbu Ph3	SAMBO Arabia Cont Co.	Pultruded Grating/ Handrail/ Pro Ladder	Jun'15	M/S
272	Seawater Cooling System R.C.S.D Proj	Khonaini International Co	Ladder	Jul'15	M/S
273	Independent Power Plant - Rabigh 2	Kettaneh Construction	Pultruded Grating/ Handrail/Lad	Aug'15	M/S
274	Saudi Elastomers Project	Daelim Saudi Arabia	FRP Sunshades	Aug'15	M/S
275	King Abdulaziz Int'l Airport Project	ORASCOM KSA	Ladder with Safety Cage	Aug'15	M/S
276	Fish Hachery Project, Ras Abu Ali	Al Hammam Company	Curb Angle	Aug'15	M/S
277	Mardumah Project Ph2	China Harbour Engineering	Ladder	Sep'15	M/S
278	Ma'aden Amonia Plant Proj, Ras Al Kha	Gulf Asia Contracting Co	Pultruded Grating/ Handrail/ Lad	Sep'15	M/S
279	King Abdulaziz Int'l Airport Project	Vision Network Company	Ladder with Safety Cage	Sep'15	M/S
280	Faisaliya Jeddah Project	DNGO Contracting Saudi Co	Walkthru/Platform/Ladder w/saf	Oct'15	M/S
281	North Jeddah Project	Abuljadayel Co	Molded Grating	Oct'15	M/S
282	Madina Hajj City package 1	Al Fouzan Trading	Molded Grating/ Ladder w/safet	Nov'15	M/S
283	SWCC Yanbu Ph3	Samsung Engineering Co Ltd	Profiles	Nov'15	M/S
284	JIZEN Project	Veolia Water Solutions	Molded Grating	Dec'15	M/S
285	Dhurma Power Plant Project	Assad Said Corp	Ladder	Dec'15	M/S
286	IWPP Shuaibah Project	QRY Constrction Co Ltd	Pultruded Grating/ Handrail/ Sta	Dec'15	M/S



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287	RC - P&C Sea Water Pump Stations	FEMCO	Profiles	Dec'15	M/S
288	RC - Defence Project, Jubail	Al Kifah Contracting	Ladder	Jan'16	M/S
289	Eastern Region STP	Water & Power Projects Con	Molded Gratings/ Covers	Jan'16	M/S
290	Jeddah South Thermal Power Plant	Saudi Archirodon LTD	Pultruded Grating	Jan'16	M/S
291	SWCC Yanbu Ph3	SUNGBO C & E Co. Ltd	Grating/ Ladder w/safety cage/ Checkered Plate/ Cover	Jan'16	M/S
292	Madina Hajj City package 2	Al Fouzan Trading	Ladder w/safety cage	Jan'16	M/S
293	SWCC Yanbu Ph3	SAMBO Arabia Cont Co.	Handrail/ Walkthru	Jan'16	M/S
294	RC - Site Devt of Downstream Ph1	Khonaini Intl	Pultruded Grating/Handrail/ Plat	Jan'16	M/S
295	Mainline of sewage, Jeddah	Al Yamama Company	Ladder w/safety cage/ Handrail/	Feb'16	M/S
296	Sabic Infrastructure	Azmeel Contracting Compan	Ladder	Feb'16	M/S
297	Hyundai - Shuqaiq Power Plant	Huta Marine Works Ltd	Handrail/ Ladder w/safety cage	Feb'16	M/S
298	SWCC Yanbu Ph3	Attken Steel Engineering	Pultruded Grating	Feb'16	M/S
299	Infra of Jubail 2, Stage 2 (SWC)	China Communications	Pultruded & Molded Grating/ Pla	Feb'16	M/S
300	SABIC Mutrafiah Project	Saudi Kier Construction Ltd	Ladder	Feb'16	M/S
301	Shuqaiq Steam Power Plant	Saudi Conreco/Saudi Archiro	Ladder with Safety Cage	Feb'16	M/S
302	SADARA Project	Nasser Al Hajri	Profiles	Feb'16	M/S
303	STP North Jeddah Airport	Ahmad A. Alkadi Col Ltd	Handrail	Mar'16	M/S
304	Gov't Agencies Compound (MOF) Riy	Al Fouzan Trading	Access Ladder with safety cage	Mar'16	M/S



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305	RC - P&C Sea Water Pump Stations	FEMCO	Stair Tread/Pultruded Gratings/	Mar'16	M/S
306	Jamal Omar Dev't Project Ph2, Makkah	Saudi Arabian Baytur	Molded Grating/ Platform/ Hand Ladder w/safety cage	Mar'16	M/S
307	Dhurma Power Plant Project	Assad Said Corp	Ladder	Apr'16	M/S
308	Water Jeddah Project	Al Manar Arabian Corp	Platform/ Handrail/ Ladder w/safety cage	Apr'16	M/S
309	Yanbu Ph3, Desalination Plant	Doosan Heavy Industries	Handrail	May'16	M/S
310	Oman	Amiantit	Profiles	Jun'16	M/S
311	RC Project - Ras Al Khair	Azmeel Contracting Compan	Ladder/ Ladder Steps	Jun'16	M/S
312	SWCC Yanbu	Support Lines	Pultruded & Molded Grating/Pla Covers, Integrated system	Jun'16	M/S/I
313	MEP Construction of Apartment	Azmeel Contracting Compan	Ladder	Jun'16	M/S
314	SWCC Yanbu Power Plant Ph3	Samsung Engineering	Ladder	Jul'16	M/S
315	Water Park Utilities	China Harbour Engineering	FRP Rebars	Jul'16	M/S
316	SWRO Ph2, Marafiq	Salem Al Salem	Pultruded Gratings, Handrails, Sheet Covers, Ladders w/ Safety Cage	Aug'16	M/S
317	Saudi ARAMCO Proj	OGASCO Saudi Aramco	Molded Grating	Aug'16	M/S
318	National Guard Family Compound	Azmeel Contracting Compan	Gratings & Ladders	Aug'16	M/S
319	Jeddah Airport Proj.	AlKawther Industries	Gratings and Plates	Aug'16	M/S



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320	Utility Bldg. RC C02 Jubail	Alkifah Contracting	Ladders	Oct'16	M/S
321	Shuquaiq Steam Power Plant Project	Al Fanar Bena	Gratings	Oct'16	M/S
322	SWCC Shuquaiq Plant	Kabbani Construction Grp	Gratings and Ladders	Nov'16	M/S
323	Al Khafji SWRO Plant	Salem Al Salem	Pultruded Gratings and Cabbles	Nov'16	M/S
324	Baggage Spiral Chute@ KAIA Jeddah	Saudi Binladin Group	GRP Baggage Chute	Nov'16	M/S
325	KNPC-Al Zour Refinery-Kuwait Proj	Arabian Int'l Co.	Grating, Handrails and Platforms	Nov'16	M/S
326	RCSD Proj. 137-C03	Khonaini Int'l Company	Ladders and Platforms	Dec'16	M/S
327	SWCC Yanbu	Ahmed H. Al Khanjaf Est.	Molded Gratings and Handrails	Dec'16	M/S
328	Al Khafji SWRO Plant	Saudi Binladin Group	Pultruded Gratings, Cabbles ladders and Handrails	Jan'17	M/S
329	Jubail SWRO Plant	Rawafid Int'l	Profiles	Jan'17	M/S
330	Replace Wireless System - Various company facilities Project	Ather Trading Est. Saudi Aramco	Profiles	Feb'17	M/S
331	PP13-Dhurma	Assad Said	Ladders	Feb'17	M/S
332	National Guard Family Compound	Azmeel Contracting Company	Fiber Glass Cabinet	Feb'17	M/S
333	RC Project's Valve Chamber	Khonaini International	Installation of supplied FRP Plates with structural supports	Feb'17	I
334	RC Cont. No.137-C03	Khonaini International	FRP Pipe Support	Feb'17	M/S
335	Al Faisaliyah	Abuljadayel Co.	GRP Sheets	Apr'17	M/S
336	Modon Project	Abdullah Ahmad Aldossary	FRP Pultruded Ladder	Apr'17	M/S



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337	Dammam North Housing Project	MAPA Construction	FRP/GRP Integrated System and Structural Supports	Apr'17	M/S/E
338	1028 Riyadh Park	Al-Aman Company	FRP Molded Grating	Apr'17	M/S
339	HH - R C JUBAIL - DREDGING WORKS	Huta Marine	FRP Ladder	May'17	M/S
340	Operation and Maintenance	Saudi Binladin Group	FRP Pultruded Grating	May'17	M/S/E
341	Al Khafji SWRO Plant	Advanced Water Technology	GRP Pultruded Gratings w/ supports and GRP Handrails	Jun'17	M/S/E
342	Yanbu Power & Desalination Plant PH-3	SEPCO III	FRP Pultruded Gratings w/ supports and FRP Handrails	Jul'17	M/S/E
343	ARAMCO Project	Al Yamama Company	FRP Handrail, GRP Ladders w/ C and FRP Gratings and Checkered plates	Jul'17	M/S/E/I
344	P&C of Southern Drainage Outfall @ RI	NEES Trading and Contracting	FRP Rebar	Aug'17	M/S
345	Fadhili Power Plant	Kettaneh Construction	GRP Pultruded Grating and GRP Ladder Rung	Aug'17	M/S/E
346	Mangrove Ecopark in Rahima	SHADE Corp.	GRP Handrails	Sep'17	M/S/E
347	Processing Plant Receiving Area Trench	National Aquaculture Group	FRP Heavy Duty Grating	Nov'17	M/S
348	Scope Line 3, ANM-Riyadh Metro Proj.	Tazez Advanced Industrial	FRP Integrated System	Nov'17	M/S/E
349	133-Aramco Package 2	Al Yamama Company	FRP Handrail and FRP Grating	Jan'18	M/S/E
350	Jeddah Economic City	Al Fouzan Trading	GRP Ladder with Safety Cage	Mar'18	M/S/E
351	Jazan Integrated Gasification Combine Cycle	China Harbour Engineering	FRP Ladders, Grating, Handrail Staircase	Apr'18	M/S/E



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352	Shoaiba MED Exp.II	Sasakura Middle East Co.	FRP Handrail and Ladder with Safety Cage and walkthru	Apr'18	M/S/E
353	Project Emergency Response Complex (JEC)	China Railway 18th Bureau	FRP Ladder, Handrail and Platform	Apr'18	M/S/E
354	Infrastructure Sabic Al-Mutrafiah	Azmeel Contracting Company	FRP Ladder	Apr'18	M/S/E



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