

Composite Fiber Reinforced Polymer Products

Specialised FRP/GRP Manhole Covers, Gratings, and Chambers as per International Standards



*Strength within
Pride throughout!!*



Buildtek Polymers Private Limited has been established as the manufacturer of high quality FRP-Fiber Reinforced Polymer Products with State of the Art Manufacturing Facilities at Bidadi, Ramnagar District, Karnataka. With Advanced Machinery and R&D facilities, Buildtek is thriving to give Long Life, Maintenance Free, Light Weight, Heavy Duty, Compact & Corrosion Resistant FRP Products comprising Manhole Covers, Gully Covers, Gratings and Chambers for various applications in wide range of Sizes, Shapes and Capacities.

Background of the Company: Established during 1996 based at Bangalore, Buildtek Polymers Private Limited, the member of IPA-Indian Plumbing Association started promoting PVC & CPVC Plumbing Pipes successfully against traditional GI pipes in South India and served millions of customers in the last two decades through distribution network of more than 300 dealers & sales offices at Bangalore, Hosur, Coimbatore, Chennai & Cochin. Company is committed to deliver World Class corrosion free FRP Manhole Covers with unmatched aesthetics, impregnated colours, capable of bearing heavy loads, also with customised top designs, Corporate Logos, warning letters for bulk requirements.

Factory : KIADB Industrial Area Bidadi, Karnataka.



With technological innovations and continuous research on selection of quality raw materials, Laminate Hardness, Resin Recipes, Tensile Strength, Elongation, Water absorption, Press Technology and Load Testing methods, the products are manufactured confirming to BS EN 124 Standards and also exceeding BIS 1726:1991 and BIS 12592:2002 Standards in Strength and Capacity.

Unlike metal and concrete products, the FRP products are more enviro friendly with less air and water emissions, consume less energy and emit very less greenhouse gas, resulting in lower Carbon footprint on this Earth.



Aagam Manhole Covers for Chambers and Manholes

FRP-Fibre Reinforced Polymer is a composite material made from Glass Fiber Reinforcement in a polymer matrix. The polymer is an epoxy, Vinyl Ester or Unsaturated Polyester thermosetting component and glass fibres in the form of woven roving, chopped strand mat and surfacing veil. Aagam FRP manhole covers are manufactured using one-step Compression Molding Technology under High Pressure resulting in a dense compact product with high impact and tensile strength.

With uniform compaction throughout the body, the core material gives rigidity where as the FRP shell provides structural elasticity to the core material. This unique combination of rigidity and elasticity gives Aagam manhole cover a distinctive advantage over Cast Iron and Concrete Covers with better compressive and breaking strength.

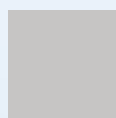
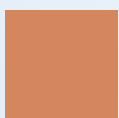
The special Features of Aagam Manhole Covers

- 1) Uniform compact body structure.
- 2) No Air voids and internal fissures.
- 3) Tough surfaces with high impact strength.
- 4) Closed Key holes that block drain odour and dust falling inside.
- 5) Precise Double Seals preventing water flow inside.
- 6) Round corners prevent edges chipping.
- 7) Non skid surface with better Aesthetics.
- 8) Withstand harsh corrosive environments.
- 9) Minimal effects to ultraviolet radiation.



Benefits of Aagam Manhole Covers

- 1) Decorative and Antislip surface finishes with rich impregnated colors.
- 2) High strength to weight ratio.
- 3) Non Corrosive, Non Conductive, Non Magnetic and Fire Retardant.
- 4) Light weight, hence reduced injuries while handling and installation.
- 5) No Scrap Value, hence eliminate theft of covers.
- 6) For all traffic loads from pedestrian walkways to Heavy Vehicle movements – 1.5 Tons to 40 Tons.
- 7) Temperature withstanding from -40°C to +80°C.
- 8) Firm and do not move – Locked into the installed place.
- 9) Reduce Maintenance cost and Save Energy.






Aagam Manhole Covers

Aagam FRP range of Manhole Covers and frames have been specially developed to offer safer and easier access to underground inspection services with reduced risk of injury and meet the load requirements from pedestrian walkways to highways; suitable for Inspection chambers, UG Tanks, Overhead Tanks, Silt Trap chambers, Earth Pits, Rain Harvesting chambers, Podium catch Basins, STP tanks, Gas line chambers, Electrical & Communication chambers.



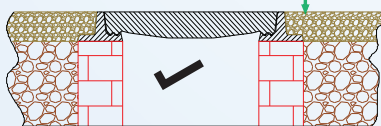
AAGAM Manhole Cover Size and Clear Opening

All sizes in mm

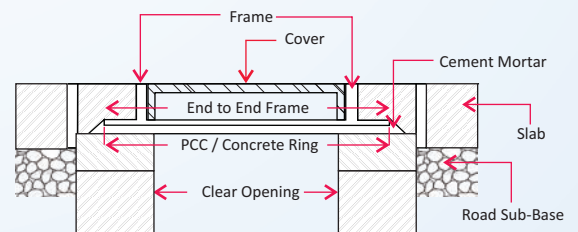
Square 		Circular 		Rectangle 	
Cover size	Clear opening	Cover size	Clear opening	Cover size	Clear opening
340X340	300X300	510 Dia	450 Dia	500X350	450X300
505X505	450X450	660 Dia	600 Dia	670X520	600X450
655X655	600X600	970 Dia	900 Dia	650X350	600X300
830X830	750X750			945X500	900X450
1000X1000	900X900			1000X700	900X600
1075X1075	1000X1000				

AAGAM Manhole Covers Installation Guidelines

Correct way of installation where the frame is fully supported at the bottom by solid brick work



Wrong way of installation where frame is partially supported at the bottom



- 1) Prepare appropriate height of bricks/concrete seating bed over-which frame to be installed.
- 2) When adjusting the height of cover by more than 40mm a concrete ring can be used.
- 3) Spread 20-60 mm fine layer of cement mortar bed, install the frame with full contact and align at the correct height.
- 4) The frame must always be in full contact with the mortar bed and capable of bearing. If the substructure is not executed correctly, subsequent traffic load will cause loosening, early wear, rattling and even breakage of cover.
- 5) Clean the frame and cover contact surfaces completely and no mortar residue must be left over.
- 6) Close the cover and check that it is correctly supported on the frame.

Aagam Gully Covers

Aagam FRP Gully covers exceed conventional solutions in strength and durability, a light weight alternative to Concrete & Cast Iron covers, suitable for medium and heavy vehicle movement for commercial ways, Rainstorm drains, Surface Drains, Walkways and Footpaths, permitting the passage of water through itself checking water clogs.



680X380 (Cover size)
600X300 (Clear opening)



520X520 (Cover size)
450X450 (Clear opening)
340X340 (Cover size)
300X300 (Clear opening)



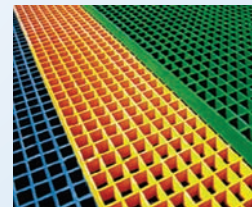
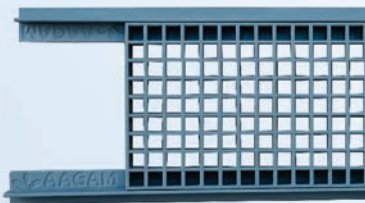
680X680 (Cover size)
600X600 (Clear opening)

Aagam Gratings

Aagam FRP Gratings are specially designed for Light & Medium Duty drains with light weight; easy installation; customised sizes for various applications including Basement drains and Landscape areas. Being non conductive and non magnetic they can be used safely for Electrical Trenches and various applications in Chemical, Pulp & Paper, Electronics, Food & Beverages, Automotive & Plating Industries.

Sizes: Available in 30 and 40mm thickness of any size upto 1 meter width and 2 meters length

Standard Sizes: 1080x377X30 or 40mm, 1080x451x30 or 40mm, 303x303mm, 599x599mm, 1080x1080mm



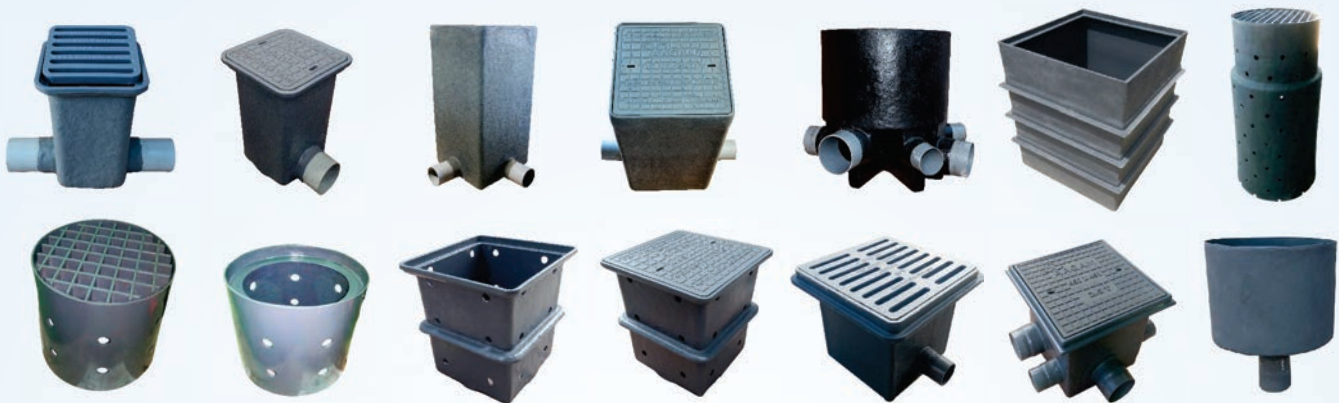
Aagam Recess Covers

Aagam FRP Recess Covers are simple and easy installable, providing an aesthetically pleasing look to complement the visual aspect of paving products, ideal for filling with gravel or bark chips and also for lawn and garden areas to replace artificial look of drain covers.

	With Tile/Granite	With Concrete/ Gravel Chips	With Grass
			

Aagam FRP Chambers

Aagam FRP chambers are long durable custom designed ready-made chambers with height, width, dia, inlets and outlets as per requirement, suitable to various applications saving installation time and cost with less risk of chipping and cracks.



Special Features of Aagam FRP chambers

- Customised FRP chambers to suit width & height and specific inlet/outlet dimensions.
- Compared to rigid materials like brick work chambers FRP chambers are at less risk of getting cracks, collapses and leakages.
- Ready made chambers, hence no curing required.
- Easy to handle and easy to install.
- Good resistance to any kind of water and to common chemicals.
- Free from formation of fungus.
- Free from rodent bites.
- Can be reusable and shifted to any place after usage.

Range of Sizes (In mm): 225x225, 290x290, 365x365, 440x440, 590x590, 990x990, 300 Dia, 450 Dia and 600 Dia with various heights from 300mm to 2000mm with options of bottom closed/opened with closed covers/perforated covers with or without inlets and outlets.

Type & Applications: Sub-soil Drainage Chambers, Sewage Chambers, Communication Chambers, Catch Basin Chambers, Rain collection Drains, Perforated Chambers for rain water and Silt traps, Earth Pit chambers with bottom openings and special chambers with outlet at the bottom.

General Instructions for Installing Chambers

1. The general dimensions of the excavation should be at least 300mm wider than each side of the FRP chamber. These dimensions should enable secure access for connection of pipes & backfilling and compacting with appropriate equipments.
2. Place the chamber on the prepared compacted bed and connect inlet and outlet pipes.
3. The backfilling should be carried out in accordance with the rules of good practice, in successive compacted layers of 300mm, appropriate to the application, ensuring it is free from stones greater than 40mm, lumps of clay greater than 100mm, timber or other material that could prevent sound compaction.
4. The appropriate height of bricks/concrete seating bed (150mm thick PCC) to be laid or a concrete ring can be used to the required height prior to the positioning of the FRP frame and cover.
5. Appropriate capacity Manhole Covers should be used to distribute loads away from the chamber.

Technical Specifications of AAGAM FRP Manhole Covers

General Specifications:

General	Materials – Fiber Reinforced Polymer Containing 45% - 70% Fiber reinforcement Resin matrix must be Thermoset
Use-ability	Product must facilitate easy removal by one person. High Strength to Weigh Ratio. There shall be no possibility of corrosion welding between the cover and the frame, preventing damage to the infrastructure when opening
Pedestrian Safety	Non-conductivity of electricity, Heat insulating, Skid slip performance
Fatigue Performance	No visible damage
Corrosion Performance	No Corrosion effects
Environmental Performance	Superior performance in aggressive environments

Technical Specifications:

Property	Values	Unit
Density	2450 (±5%)	kg/cm ³
Bending Strength	300 (±5%)	kg/cm ²
Compressive Strength	1150 (±5%)	kg/cm ²
Tensile Strength	150 (±5%)	kg/cm ²
Surface Hardness	≤ 80	Shore D
Water Absorption	< 0.15%	%ge
Environmental Aspects	Environmental Friendly	
Fire Resistance	Fire Retardant	

Comparison of AAGAM Manhole Covers with RCC and Cast Iron covers

Properties	RCC Covers	Cast Iron	Aagam FRP Manhole
Strength to Weight Ratio	Too Low	Moderate	Very High, product is compact and light weight with more density
Bending/Breaking Strength	Low	Low	Very high, capable of withstanding upto heavy trucks/trailer movements
Corrosion Resistance	Very low	Low	Very High. Impervious to most of the chemicals
Surface Hardness	Too Low	High	High
Thermal Expansion	Too High	Moderate	Very Low
Periodical Painting	Required	Required	Not required, pigment is impregnated
Material Handling & injury	Heavy weight difficult to handle, hence risk of injury is more	Medium weight difficult to handle	Light & moderate, convenient to handle and less risk of injury
Theft	Not applicable	High scrap value, more prone for theft	Non metallic, hence no theft issues
Custom Colour, Size & Design	Not possible	Limited	Possible with customised top designs, sizes, logos, warning letters for bulk requirements
Aesthetics	Very Limited	Limited. Available in standard grey or black colours only	High Aesthetics products available with different colours choice
Life Span	Very Low	High	Very High

Suggested Covers Capacity - Load Bearing chart

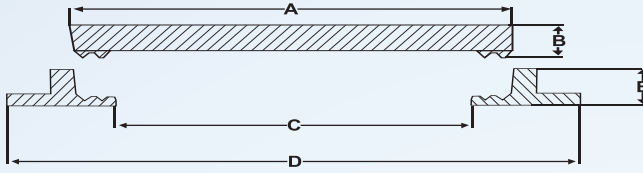
Pedestrian & Two Wheeler Movements	Light Vehicular Movements Cars	Medium Commercial Vehicular Movements Canters	Heavy Commercial Vehicular Movements Trucks	Extra Commercial Heavy Vehicular Movements Trailers
2.5T	5T	10T	20T	40T

OUR CLIENTS



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Dimensions and Approximate Weight of Aagam Manhole Covers



- A - Cover Size
- B - Cover Thickness
- C - Clear Opening
- D - End to End Frame
- E - Frame Thickness



All Sizes in mm

Square				Rectangle			
Cover size (A)	Clear Opening (C)	Capacity in Tons	Weight in Kgs	Cover size (A)	Clear Opening (C)	Capacity in Tons	Weight in Kgs
340X340	300X300	2.5	7.61	500X350	450X300	2.5	19.38
340X340	300X300	5	12.85	500X350	450X300	5	19.61
340X340	300X300	10	13.36	500X350	450X300	10	19.83
340X340	300X300	20	13.71	500X350	450X300	20	20.29
340X340	300X300	40	21.60	500X350	450X300	40	20.75
505X505	450X450	2.5	22.32	670X520	600X450	2.5	25.34
505X505	450X450	5	22.84	670X520	600X450	5	31.93
505X505	450X450	10	25.16	670X520	600X450	10	33.17
505X505	450X450	20	26.80	670X520	600X450	20	34.41
505X505	450X450	40	40.00	670X520	600X450	40	-
655X655	600X600	2.5	34.50	650X350	600X300	2.5	20.10
655X655	600X600	5	35.17	650X350	600X300	5	22.43
655X655	600X600	10	45.33	650X350	600X300	10	23.50
655X655	600X600	20	48.27	650X350	600X300	20	25.20
655X655	600X600	40	63.57	650X350	600X300	40	-
830X830	750X750	2.5	61.05	945X500	900X450	2.5	40.98
830X830	750X750	5	67.51	945X500	900X450	5	42.71
830X830	750X750	10	94.46	945X500	900X450	10	58.64
830X830	750X750	20	101.33	945X500	900X450	20	60.37
830X830	750X750	40	125.26	945X500	900X450	40	-
1000X1000	900X900	2.5	111.37	1000X700	900X600	2.5	72.43
1000X1000	900X900	5	140.24	1000X700	900X600	5	74.59
1000X1000	900X900	10	225.02	1000X700	900X600	10	87.95
1000X1000	900X900	20	237.81	1000X700	900X600	20	96.59
1000X1000	900X900	40	252.44	1000X700	900X600	40	157.92
1075X1075	1000X1000	2.5	143.98	Gully Cover			
1075X1075	1000X1000	5	155.15				
1075X1075	1000X1000	10	279.40				
1075X1075	1000X1000	20	295.04				
1075X1075	1000X1000	40	-				
Circular				Cover size (A)	Clear Opening (C)	Capacity in Tons	Weight in Kgs
Cover size (A)	Clear Opening (C)	Capacity in Tons	Weight in Kgs	340X340	300X300	2.5	7.42
510 DIA	450 DIA	2.5	7.61	340x340	300x300	5	11.61
510 DIA	450 DIA	5	12.85	340x340	300x300	10	14.42
510 DIA	450 DIA	10	13.36	340x340	300x300	20	16.32
510 DIA	450 DIA	20	13.71	340x340	300x300	40	20.02
510 DIA	450 DIA	40	32.80	680x380	600x300	2.5	19.38
660 DIA	600 DIA	2.5	22.32	680x380	600x300	5	19.61
660 DIA	600 DIA	5	22.84	680x380	600x300	10	19.83
660 DIA	600 DIA	10	25.16	680x380	600x300	20	20.29
660 DIA	600 DIA	20	26.80	680x380	600x300	40	20.75
660 DIA	600 DIA	40	57.00	520X520	450X450	2.5	25.34
970 DIA	900 DIA	2.5	34.50	520X520	450X450	5	31.93
970 DIA	900 DIA	5	35.17	520X520	450X450	10	33.17
970 DIA	900 DIA	10	45.33	520X520	450X450	20	34.41
970 DIA	900 DIA	20	48.27	520X520	450X450	40	-
970 DIA	900 DIA	40	63.57	680X680	600X600	2.5	20.10
				680X680	600X600	5	22.43
				680X680	600X600	10	23.50
				680X680	600X600	20	25.20
				680X680	600X600	40	-

NOTE: Approximate weights mentioned above are indicative and referred only for handling and transportation aspects and do not have any relation to capacity of products.

OUR PRODUCTS



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