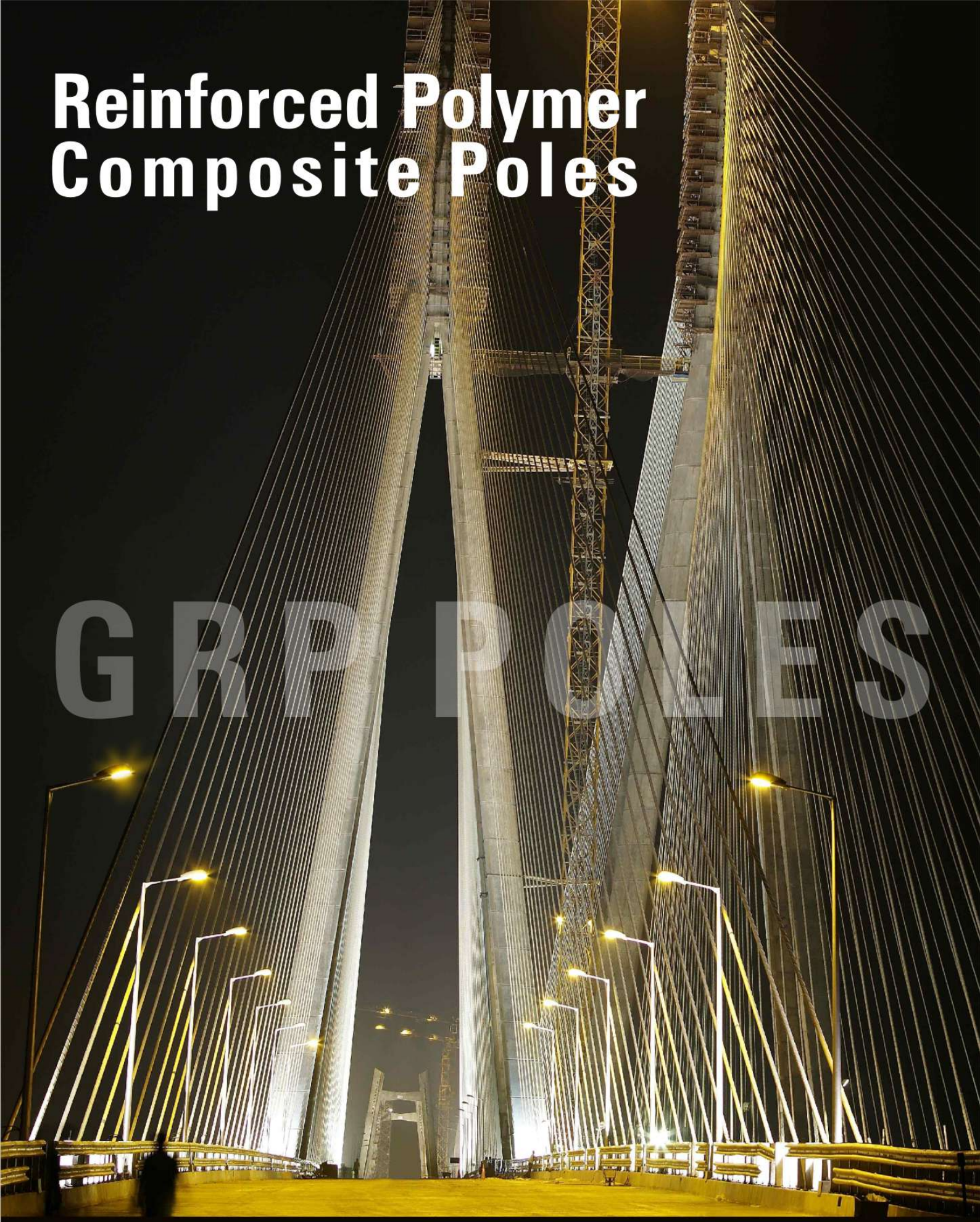
Reinforced Polymer Composite Poles



BAJAJ ENGINEERING & PROJECTS

Leaders in lighting & power systems

company

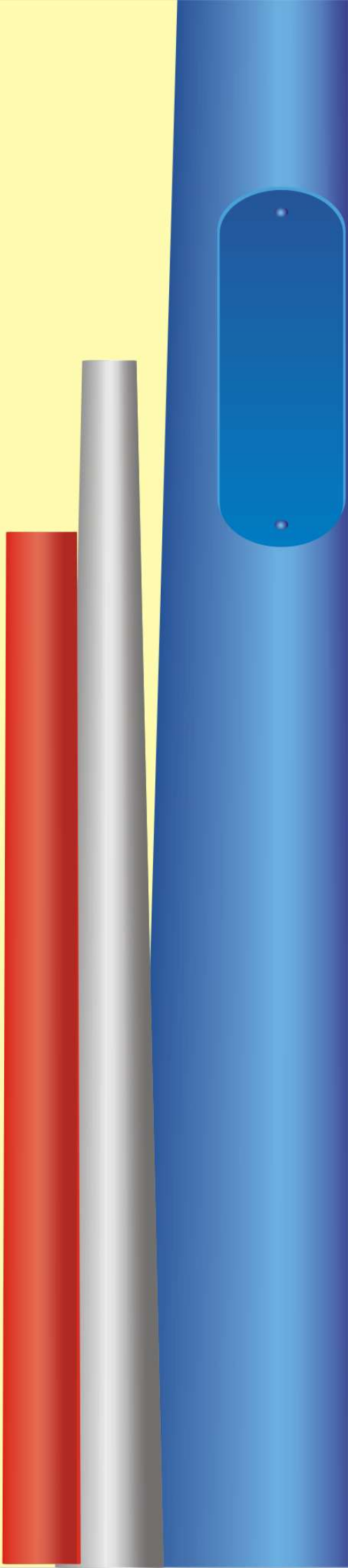
Bajaj Electricals Limited (BEL) is part of the 'Bajaj' group founded almost a century ago by Late Shri Jamnalal Bajaj, a well known Indian freedom fighter and visionary. The group is among the top 10 business houses in the country with a combined group turnover in excess of 5.5 Billion USD.

Bajaj Electricals Limited has six strategic business units - Engineering and Projects, Appliances, Fans, Luminaires, Lighting and Morphy Richards. Bajaj Electricals Ltd is well established in a wide range of products such as lamps. tube lights & CFLs, luminaires, small household appliances, ceiling fans and table fans as well as turnkey engineering services. Bajaj Electricals Ltd was established in 1938 and has been in existence for over 70 years and has steadily grown by expanding the business, both in the domestic and international markets.

Bajaj Electricals has 19 branch offices spread in different of the country besides being supported by a chain of about 600 distributors, 3000 authorized dealers, over 2,50,000 retail outlets and over 230 Customer Care centers.

Engineering and Projects Business Unit (E&P BU) of the company deals in High Masts, Poles, Transmission Line Projects, Industrial & Rural Electrification. BEL is an undisputed leader and pioneer in the field of High Mast Lighting Systems & Lighting Poles in India. All activities of E&P BU are ISO:9001 certified. The manufacturing unit is ISO:14001 certified.

Bajaj GRP



Bajaj GRP material exceeded the expectations of the authorities, as it not only offered the answer to the excessive corrosion, but also offered convincing strength properties combined with an appealing finish and design.

Bajaj GRP, as it became known, is used not only for its resistance to corrosion, but is preferred by architects, developers and local authorities for its aesthetic appearance, strength, ease of installation and inherent safety for road users.

Bajaj GRP composite poles are a high-tech innovative product, which can withstand high stress and all known atmospheric conditions. The poles are made of orthophthalic unsaturated polyester resins and reinforced by fiberglass rovings, mats or fabrics.

The combination of two unlike components (glass and resin) for technical chemical and physical characteristics led to the successful creation of a compound which can enhance the positive properties of each component while lessening the negative ones.

The exterior of the poles is made of polyster non-woven veil impregnated with resins for protection from untraviolet rays and to ensure long life.

advantages

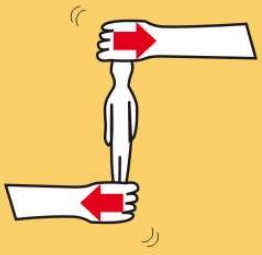
Electrical Insulation

Flame Resistant

Thermal Insulation

Light Weight

Chemical Resistant



Mechanical Strength

Radio Transparency

Water Proof

Load Resistant

Machining Assembling

Bajaj offers the ultimate in lighting support structures for today's increasingly demanding lighting requirements. Low Cost, Low Maintenance, Fast and Easy Installation, Safety, and Environmental Sensitivity are the most obvious benefits of Bajaj GRP poles for roadway and area lighting.

LOW COST

Technological advancements in both materials and manufacturing techniques produce lighting poles that not only cost less at the outset, but also are essentially maintenance free so they cost almost nothing in the long run. And, the inherently low harmonic vibration increases the life of luminaires and lamp, too.

LOW MAINTENANCE

Bajaj GRP poles are impervious to pests, rust, corrosion from low chemicals or salt water, and other hazards like weedeaters and mowers. These poles require essentially no maintenance; and they are guaranteed against fiber blooming for the Life of the Installation.

EASE OF INSTALLATION

Direct burial eliminates both the time and the cost of concrete foundations. And, because of their light weight, poles can usually be carried without equipment. They can be installed almost anywhere. Bajaj GRP poles are particularly valuable for existing sites where the grounds must not be disturbed, and for difficult to- reach sites like trails and parks.

SAFETY

Baja GRP poles are non-conductive and meet ASTM design standards. Poles are ideal for installation in heavily populated venues such as ballparks, playgrounds, residential and shopping areas, etc.

ENVIRONMENT FRIENDLY

GRP poles are ideal for environmentally sensitive areas where access for heavy erection equipment is limited, or can severely damage the surrounding land.

Low transport cost

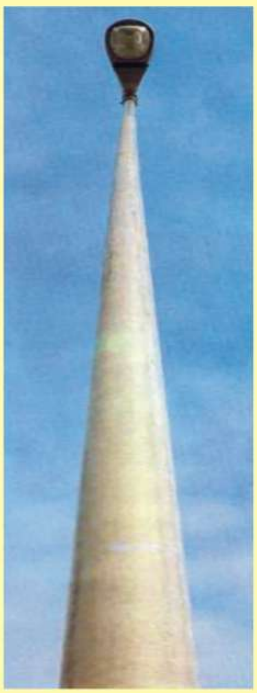
Light weight

Less space for storage

Easy to handle

Fit all luminaires

Fits to many



Joint less

NON-CORROSIVE

No above or below ground corrosion in salt climates or acid soil. A valid solution to problems caused by: Salt; Smog; Weather Elements; Marshlands; Electrical Discharge; Temperature Fluctuation.

MAINTENANCE FREE

No corrosion or decay ensures that the surface coat of the pole will not require maintenance.

LIGHT WEIGHT

The low mass saves handling, transport and erection costs during installation.

LONGEVITY

Over time, GRP poles will outlast wood, concrete, steel and aluminium under similar climatic conditions.

NON-CONDUCTIVE

Perfect electrical insulation prevents accidental electrocution by faulty wiring.

LOW INERTIA

A reduction in personal injury and damage to vehicles in road accidents.

VERSATILITY

A wide range of spigots, floodlight mountings, baseplates and decorative arrangements ensure a product for almost every application.

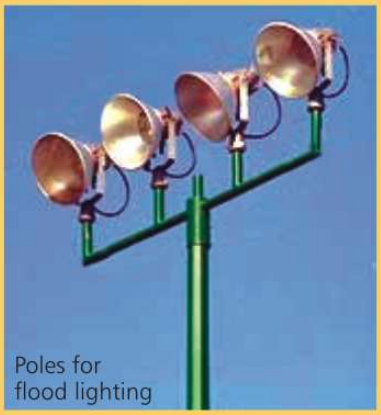
VANDAL RESISTANT

High impact strength of polyester gel coat and glass filament wound structure.

- Best for all known atmospheric conditions
- Jointless - from 3 to 14 meters
- Smooth surface
- No periodic painting required
- Low handling cost
- Low frequency vibrations
- Ecological

applications

Traffic light poles



Poles for flood lighting

Flag poles

Poles for Urban lighting

BAJAJ GRP poles are ideal for urban lighting which requires maintenance free lighting installations due to its nature of high traffic and ease of installation. Followings are some applications:

- Road lighting
- Park lighting
- Traffic lighting
- Flag poles
- Airport areas
- Road signage system
- Advertising poles
- Defense areas
- Solar lighting
- Jetty lighting
- Malls & Multiplexs lighting

Street lighting Poles

Signages

Solar lighting

Parking lighting

Junction lighting

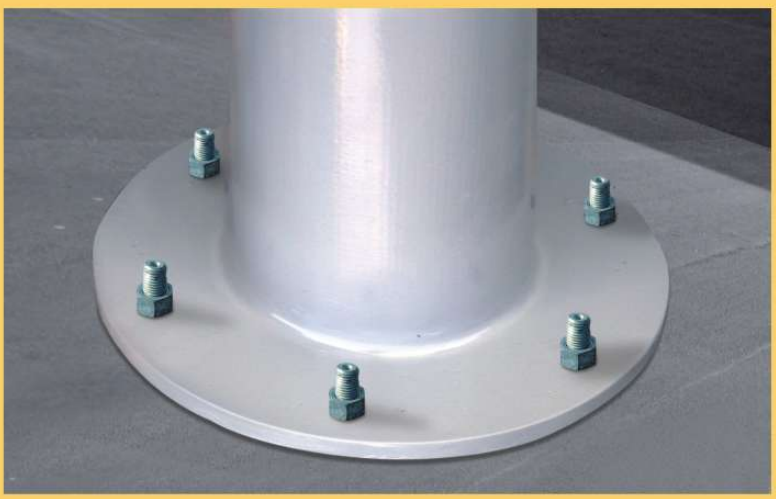
“ecological” pole

The Bajaj GRP poles can be called ecological since, once they are produced, they require no chemical treatment like wood and steel poles, which poles, which can, with time, get in the surrounding ground and cause serious environmental and pollution problems.

In addition, there are no disposal costs as with treated poles, since GRP products are nor polluting, have a long life and can reused in a different situation as if they were found new.

Bajaj GRP poles also can be used in places where poles of other materials face serious problems, like costal areas where salt is detrimental, marshlands and areas with great temperature fluctuation. Essentially Bajaj GRp poles are well suited for all places where traditional installations do not guarantee a definite and lasting solution.

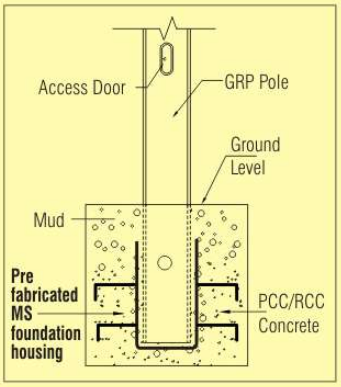
grp poles



FOUNDATIONS

GRP pole have following mounting arrangements :

- Embeded Type
- Flange Type - GRP bracket available for holding the pole.



Embeded Type

Internal Junction Box

External Junction Box

JUNCTION BOX

BAJAJ GRP poles are available with various options in Junction Box.

- Small integral junction box suitable for single fixture.
- Big integral junction box suitable for two fixtures.
- Small external junction box suitable for single fixtures.
- Big external junction box suitable for two fixtures.

Double Arm Bracket

BRACKETS

BAJAJ GRP poles are available with GRP bracket in optional sizes.

- Single arm bracket (1000/1500/2000 mm)
- Double arm bracket (1000/1500/2000 mm)

Single Arm Bracket

grp poles

LONG LASTING

BAJAJ GRP poles are resistant to:

- High mechanical stress
- Aggressive chemical agents
- Micro-organisms of the ground
- Saline moisture in coastal areas
- Contrary environment of marshlands
- Great temperature fluctuation
- All known atmospheric conditions
- UV radiation

Survive all atmospheric conditions

Long lasting

STRENGTH

BAJAJ GRP poles are designed to high strength to weight ratio.

- High impact strength
- High bending strength
- Vandal resistant
- Do not deform on impact

High strength to wight ratio

High bending strength

WIND LOADS

BAJAJ GRP poles can be designed on any specified wind speed.

Standard GRP poles are designed for a wind speed of 180 Km/Hr.

SAFETY

BAJAJ GRP poles are designed to guarantee maximum safety according to standard safety norms.

IMPACT: Most unique property of GRP poles is that they are engineered to absorb a calculated amount of impact energy before the pole shears off.

This is an optimisation between the pole's long life & durability against low speed (25 Km/Hr) car accidents such as collisions in parking lots & the safety of driver & passengers in case of high speed collision.

ELECTRICAL: GRP poles are electric insulators & non conductive, hence, shock proof.

Metal Pole

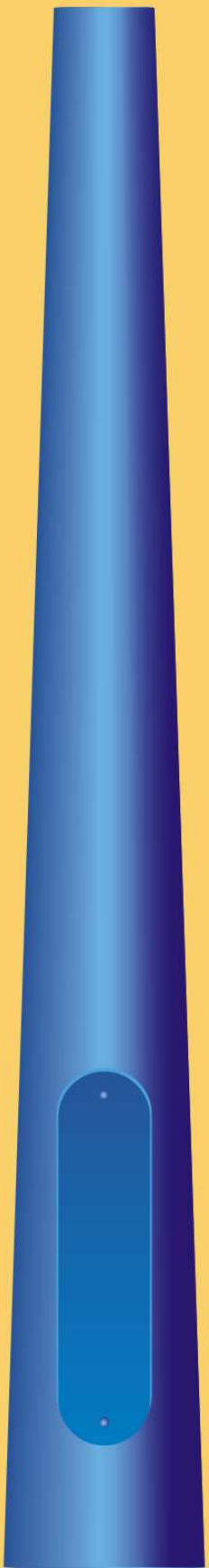
GRP Pole

grp poles

Cylindrcal
1 to 5 mtr

Square
1 to 5 mtr

Conical
3 to 13 mtr



IDEAL FOR

BAJAJ GRP poles are suitable for :

- Coastal areas
- Chemical Plant lighting
- Discharge areas
- Containment areas
- A valid solution to problems caused by: Salt; Smog; Weather Elements; Marshlands; Electrical Discharge; Temperature Fluctuation.

Highly Non-corrosive

TYPES OF POLES

BAJAJ GRP poles are available for various appliaction in different shapes, length & colours.

- Cylindrical
- Square
- Conical

COLOURS

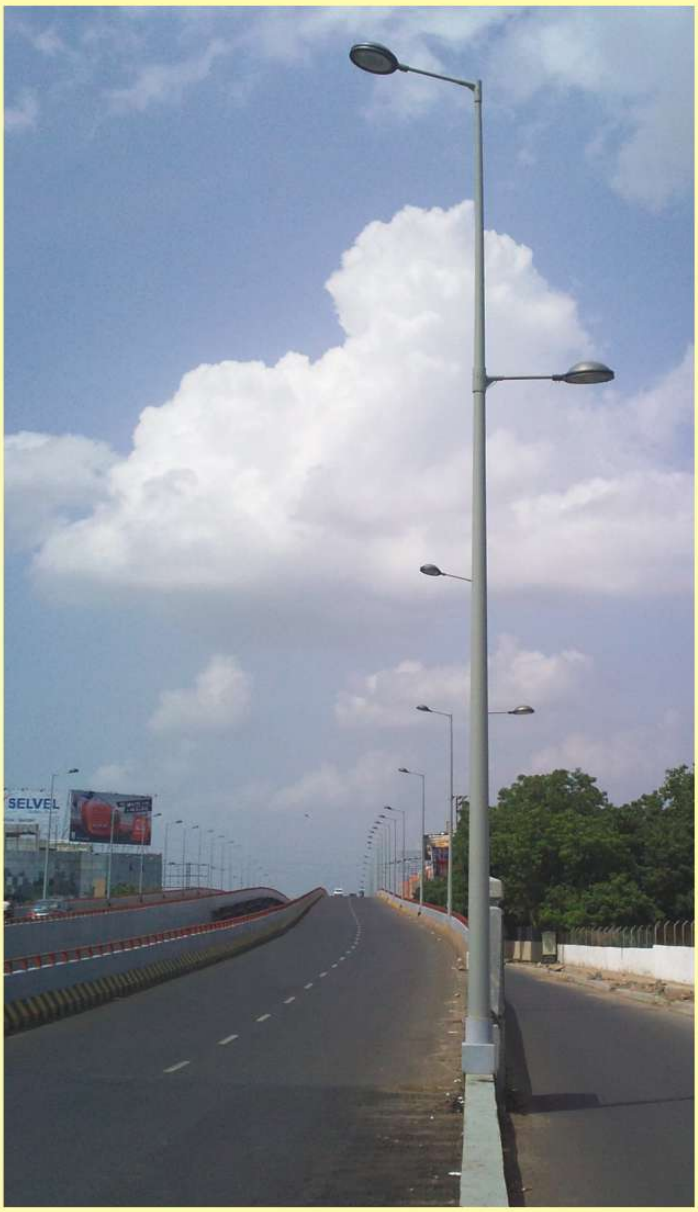
BAJAJ GRP poles are available with various colour options. They are aesthetically pleasing in any outdoor situation with wide range of colour choices and the pleasant appearance.

- The material is pre-pegmented & therefore scratch resistant.
- GRP poles are available in white / light grey / dark grey / black / red / orange / green / yellow / blue colour.
- White and grey are regular colours.
- The surface finish is UV protected.

grp poles

COMPARISON - GRP v/s METAL POLES

FEATURES	GRP	METAL
Mounting	No concrete foundation required	Concrete foundation required
Relocation	Easy & hand carried	Very difficult
Aesthetics	Great	Poor
Joints	Jointless	Many Joints
Earthing	Not required at all	Required many times due to rusting
Design Life	Very long	Very less
Corrosion	Highly non-corrosive	Highly corrosive
Construction	Single	Multiple
Maintenance	Maintenance Free	Very high maintenance all the time
Tensile Strength	400 - 500 MPA	410 MPA
Weight	Very light	Very high
Installation Cost	Very less	Very high
Environmentally	ECO friendly	Disaster
Colours	Coloured Granules used	Hand colouring from outside
Transport Cost	Very less	Very high
Current Liekage	Shock proof; Electric Insulator & non-conductive	High Risk
Periodic Painting	Not required at all	Frequent hand painting required
Survival	Ideal for all possible environments	Can't survive rains



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