



# ANWAR ISPAT

STRENGTH WITHIN

ANWARS // 500DWB

ANWARS // 420DWB

# THE JOURNEY

The century old Anwar Group has been in the steel making industry since 1978. Ever since its entry into the mild steel market with 60 grade product for the first time in Bangladesh, the group has continuously upgraded itself to bring the world's latest and most advanced technology to the Bangladeshi market.

Since its launch, Anwar Ispat 500 W has been redefining the Bangladeshi Re-bar market. Committed to bringing the world's best technologies to the country, the group boldly opted to introduce Europe's pioneering technology from Belgium for its Quenching or TMT process. For Rolling the group introduced, worldwide acclaimed rolling technology under US-Patent No 4.629.165 & Us-Patent No 4.790.164. Anwar Ispat is the only proud user of such patented technology in the local rolling industry.

Anwar Ispat gallantly leads the country's mild steel industry into the export market. This achievement within one year of its launch is attributed to the group's commitment to technology & relentless devotion of Team Anwar Ispat. This glorious achievement, the group hopes, shall open a new era for the country's much required diversification of export base and will inspire Team Anwar Ispat to aim even higher in the future.

1978

**Group's Journey Started in Steel Industry**

**Inaugurated High Strength 60 Grade Steel According to ASTM Standard**

1985

2009

**Launched Anwars 500W as per BDS ISO Standard**

2020

**Introduced Anwars 500DWR and 420DWR according to BDS ISO Standard**

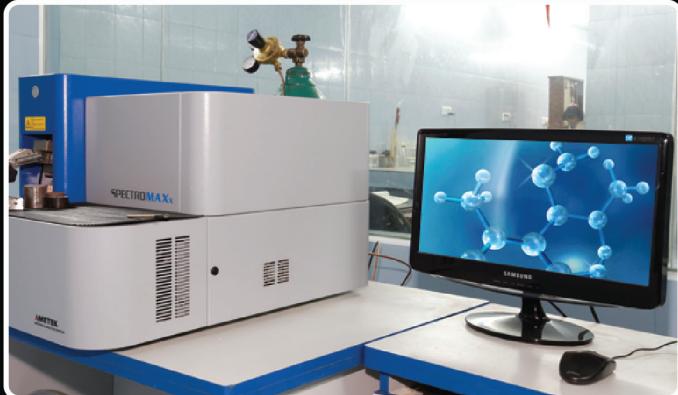


## PRODUCTS

**ANWARS 500DWR**, an innovative product from Anwar Ispat Ltd., is the new generation high strength ribbed reinforcing steel with excellent ductile properties. It is different from ordinary 500 Grade rebar in its method of manufacturing and consequently, in its combination of properties. These properties ensure that Anwar Ispat provides the strongest core to a ductile structure.

Anwar Ispat also introduced **ANWARS 420DWR** which is a highly ductile reinforcing steel for Earthquake Resistant Structures. This rebar is made with an improved mix of alloying elements as well as post-rolling treatment, promises a stronger and more flexible rebar for buildings and other constructions. It offers superior properties with respect to percentage elongation, UTS/YS Ratio and is in line with international norms of 'High Ductile' specialty rebars.

# CAPABILITIES



Anwar Ispat invests its people, its time, its resources, and its technologies in bringing top-quality steel to the market. With state-of-the-art equipment and capabilities at par with global standard Anwar Ispat meets production goals while keeping people safe and the environment protected.

## FULLY INTEGRATED PLANT



Anwar Ispat operates state-of-the-art steel plants, specially designed for maximum efficiency and safety. All processes are integrated to create a streamlined flow of material, from raw material delivery through to storage and dispatch of the finished product. Such intelligent plant integration assures customs of uncompromising levels of quality, efficiency, accuracy and productivity.



## INNOVATIVE AND PROGRESSIVE TECHNOLOGY

At the start of 21st century, new technology benchmarks are firmly established in the steel industry. Being the early adaptor of latest technologies, for instances, efficient furnaces, continuous casting machine followed by TMT (Thermo Mechanical Treatment) technology, the mighty innovation in quenching and tempering. Anwar Ispat has brought major efficiency gains with reduced demand on energy and cutting on carbon foot print.

## SKILLED PEOPLE

A strong and dedicated workforce runs our plant. Engineers, operators, and mechanics undergo rigorous and continuous training, resulting in maximum efficiency, excellence in operations and delivering on international scale.



# WHAT MAKES OUR REBAR SPECIAL

Rebars are specified and assessed from the functional point of view over mainly two dimensions: mechanical and chemical properties. Anwar Ispat complies with all mechanical and chemical specifications specified by BDS ISO 6935-2:2016. Particulars attention is given to the properties, namely: ductility (elongation & elongation at maximum force) and ratio of ultimate to yield strength for use in seismic design. These desired properties are achieved by maintaining the right chemistry in the billet making and controlling rolling parameters.

## TENSILE PROPERTIES

TENSILE PROPERTIES AS PER STANDARD BDS ISO 6935 -2:2016			
Properties	Unit	500DWR	420DWR
Yield Strength (YS)	MPa	500 (min.)	420 (min.)
Ultimate Tensile Strength(UTS)	MPa	625 (min.)	525 (min.)
UTS/YS Ratio	-	1.25 (min.)	1.25 (min.)
Elongation (A)	%	13% (min.)	16% (min.)
Elongation at Max. Force (Agt)	%	8% (min.)	8% (min.)

# CHEMICAL PROPERTIES

Anwar Ispat is produced as per BDS ISO 6935-2:2016, its carbon levels are maintained at much lower than the specifications which results in its excellent ductility, high bendability, better corrosion resistance and superior weldability. Other undesirable impurities (like Sulphur and Phosphorus) that impair the longevity of re-bars inside constructions are also maintained at much lower than the specifications.

CHEMICAL PROPERTIES AS PER STANDARD BDS ISO 6935-2:2016			
Properties	Unit	500DWR	420DWR
Carbon	%	0.32 (max.)	0.30 (max.)
Silicon	%	0.55 (max.)	0.55 (max.)
Manganese	%	1.80 (max.)	1.50 (max.)
Phosphorus	%	0.04 (max.)	0.04 (max.)
Sulphur	%	0.04 (max.)	0.04 (max.)
Nickel	%	0.012 (max.)	0.012 (max.)
CEV	%	0.61 (max.)	0.56 (max.)

Note: Permissible deviation in product analysis in percentage by mass for chemical properties will follow the standard BDS ISO 6935-2:2016 according to table-5.

The Carbon Equivalent Value (CEV) is calculated according to below formula:

$$\text{CEV} = C + \frac{\text{Mn}}{6} + \frac{(\text{Cr} + \text{V} + \text{Mo})}{5} + \frac{(\text{Cu} + \text{Ni})}{15}$$

where C, Mn, Cr, V, Mo, Cu and Ni are the mass fractions, expressed as percentages of the respective chemical elements of the steel.





# CHARACTERISTICS OF ANWARS 500DWR

- ANWARS 500DWR are high strength re-bars with elongation properties implying that you can economize steel consumption without sacrificing safety.
- ANWARS 500DWR has more superior weldability than conventional deformed bars to its low carbon content, it can be built-welded or lap welded using ordinary electrodes.
- ANWARS 500DWR is designed to keep the bar as straight as 1800.
- Low Sulphur and Phosphorus content makes the re-bars more durable and weather resistant.
- ANWARS 500DWR rib patterns on the re-bar surface can give quality bonding with concrete.
- ANWARS 500DWR is high strength reinforcing steel with T/Y ratio more than 1.25 and elongation properties implying that you can economize steel consumption without sacrificing safety.
- It has excellent weldability without loss of strength at welded joints. Due to its low Carbon Equivalent Value (CEV), it can be built-welded or lap-welded using ordinary electrodes.
- Special microstructure of ANWARS 500DWR results in the re-bar's excellent bendability. Its unique feature of elongation displays better bending properties without crack.

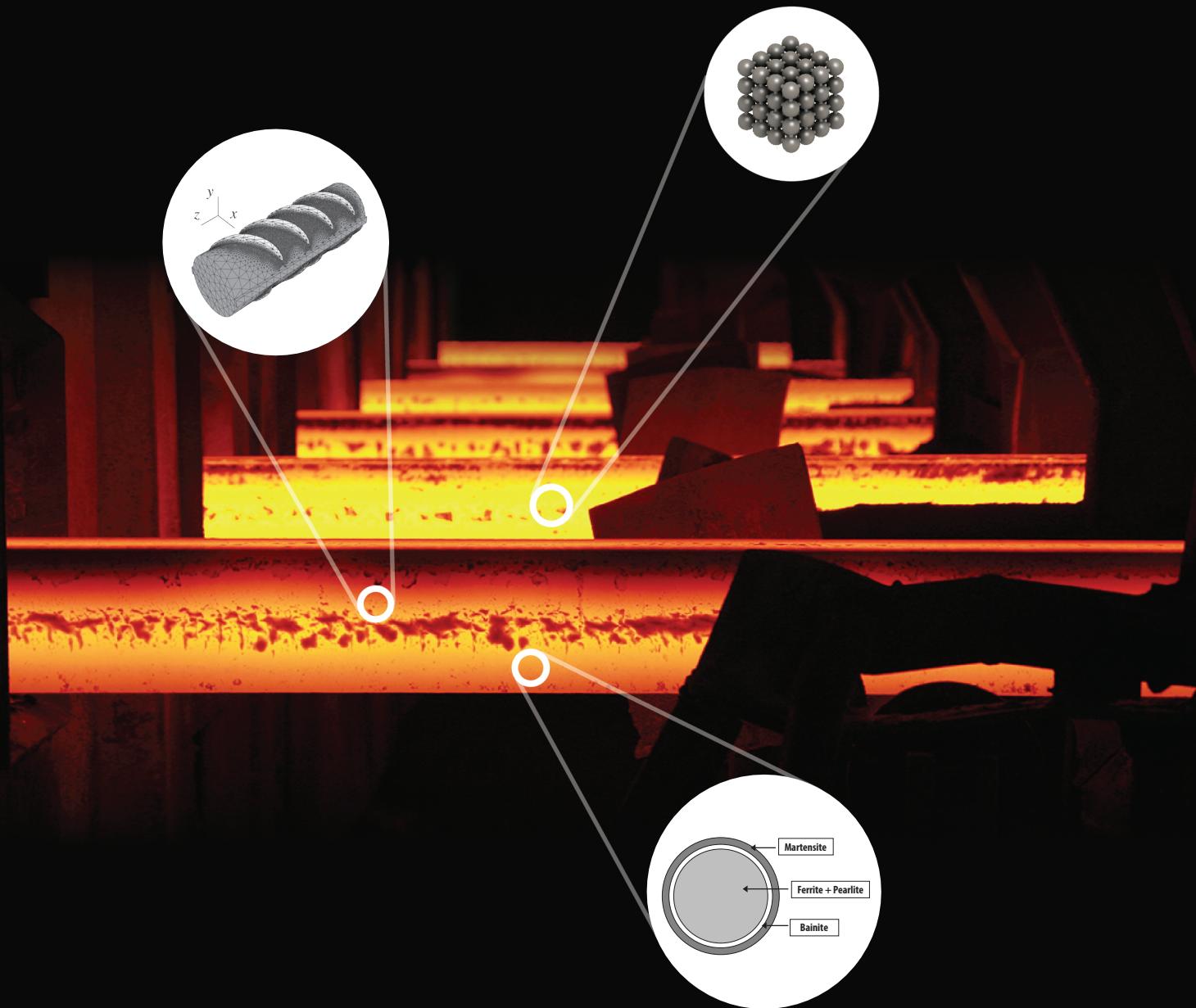


## CHARACTERISTICS OF ANWARS 420DWR

- ANWARS 420DWR is a reinforcing steel for Special Moment Resisting Frames (SMRF) for earthquake resistant structures in Bangladesh's most active seismic zones.
- It is high ductility reinforcing steel conforms to BDS ISO 6935-2:2016, ASTM 615 and ASTM 706 standard.
- It also meets the requirement of American Concrete Institute (ACI) Code and Bangladesh National Building Code (BNBC).
- ANWARS 420DWR is an earthquake resistance steel according to BNBC which is different from ordinary 60 grade steel. It offers more energy-absorption capacity to the building's structure which will provide a higher evacuation time in case of earthquakes and other calamities.
- This reinforcing steels having high tensile-yield ratios which prevent catastrophic collapse of a building in case of an Earthquake. Ideal steel for Buildings, Hospitals, Schools, Civil Defense, Airports, Army and Navy installations.

# MICROSTRUCTURE CONTROL

Bainite microstructures have the best balance of strength and ductility along with right proportion of martensite and ferrite & pearlite microstructure. Enhanced bainite improves toughness and ductility properties. Anwar reinforcing steel comes up with higher mixed zone (Bainite) by microstructure control to ensure seismic resistance performance of steel.



# CORROSION RESISTANCE

Steel in concrete is usually in a non-corroding, passive condition. However, when corrosive elements like chloride from the sea water, soil salinity or carbon, nitrogen oxide from atmospheric pollution enters concrete, they disrupt the passive layer protecting the steel, causing rust and leading to a loss of bond between the steel and the concrete. The absence of residual stress coupled with low carbon content leads to superior corrosion resistant properties of Anwar Re-bars as compared to the ordinary re-bars.

# BEND PERFORMANCE

Due to highly controlled process that ensures microstructures with soft (Ferrite and Pearlite) core, Anwars rebars have excellent bendability (in spite of their high strength) facilitating easy bending without micro cracking, making work easier and reducing labor hours and wastage.

For getting best bend performance, rebars shall be bent to an angle between 160° and 180° over a mandrel of the diameter specified below:

Nominal Bar Diameter (d)	Mandrel Diameter (max.)	
	As Per Standard BDS ISO 6935-2:2016	As Per Bangladesh National Building Code (BNBC)
≤ 16	3d	6d
16 < d ≤ 32	6d	6d
32 < d ≤ 50	7d	6d



# WELDABILITY

Because of its carefully controlled chemical composition, Anwar Reinforcing steel has low carbon contents which meet the requirements of BDS ISO 6935-2:2016 for a weldable steel.

Anwar Re-bars can be welded using all common welding processes without pre-warming or post-welding requirement. This means stronger and safer weld joints & reduction in wastage during welding at site.





## SEISMIC PERFORMANCE

Anwar Re-bars have been proven to have higher resistance to cyclic loading conditions and are recommended in the earthquake prone areas. Anwar Re-bars meet international specifications for the UTS/YS ratio thereby providing them with high strength and ductility.

- Anwar Re-bars provide the best solution for structures subject to earthquakes owing to high dissipation of energy.
- In perfectly designed (statically indeterminate) structures, high ductility steels facilitate the distribution of loads. Because of its high ductility the use of Anwar Re-bars prevents the sudden catastrophic collapse of structures, reducing loss of life and other damages.

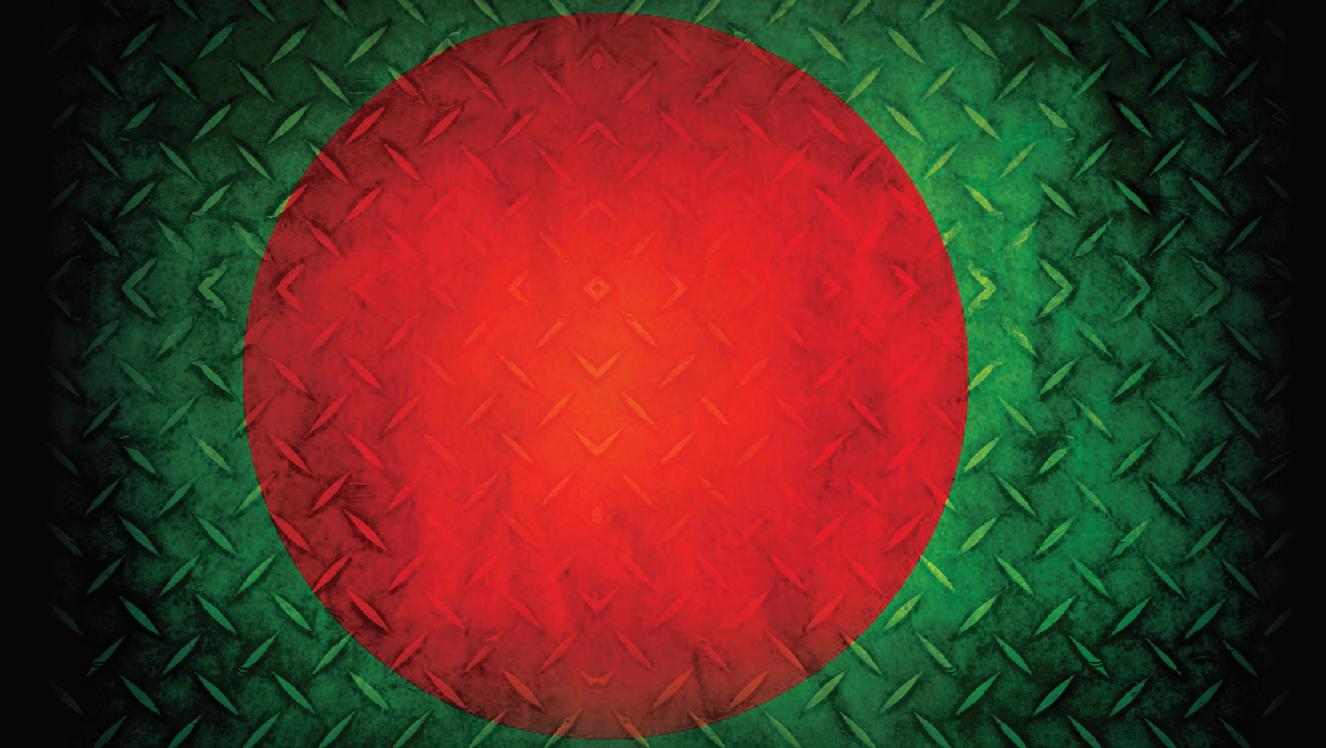
## SUPERIOR RIB PATTERN

In addition to the strength and ductility, reinforced concrete needs strong bonding between steel and concrete to ensure the composite works efficiently. Anwar Re-bars have precise, uniform and parallel rib pattern engraved through computer controlled, CNC machine resulting in excellent uniformity.

# UNIT WEIGHT & DIMENSIONAL TOLERENCE

According to BDS ISO 6935-2:2016 Standard

Nominal Bar Diameter d (mm)	Nominal Cross-Sectional Area (mm <sup>2</sup> )	Mass Per Unit Length (nominal) (Kg/m)	Permissible Deviation %
8	50.3	0.395	±8
10	78.5	0.617	±6
12	113	0.888	±6
16	201	1.580	±5
20	314	2.470	±5
25	491	3.850	±4
28	616	4.840	±4
32	804	6.310	±4
40	1257	9.860	±4



## SETTING STANDARDS

Anwar Re-bars are proud flag-bearer of Bangladesh and it represent the progress of our nation. ISO certified and BUET tested ANWARS 500DWR, ANWARS 420DWR re-bars are now comparable to Indian, American, British and Australian standard which is an achievement to be proud of. We have taken responsibility of building a future where superstructures would become reality from our dream. With Anwar Ispat inside, the core strength of a structure is ensured which allows architects and structural engineers to implement their creative ideas and build a structure that is both aesthetically appealing as well as functional. The century old Anwar Group believes the future is here and now and ANWARS 500DWR, ANWARS 420DWR are here to provide core strength inside the super structure of a futuristic Bangladesh.

# SIGNIFICANT PROJECTS

Since its inception in 1978, Anwar Ispat has been a major force in the construction of Bangladesh. Over the years we have made some milestone contributions to the development of our nation. Here is a glimpse of some of our projects.



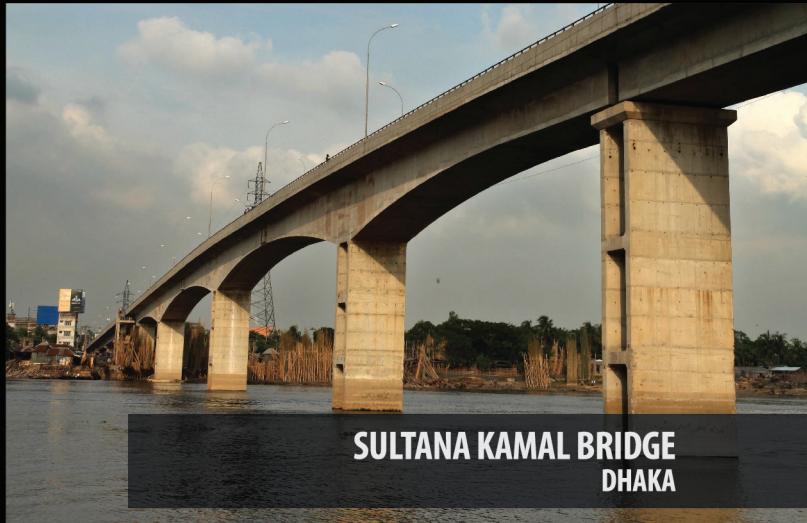
**MAYOR HANIF FLYOVER**  
DHAKA



**MOGBAZAR MOUCHAK FLYOVER**  
DHAKA



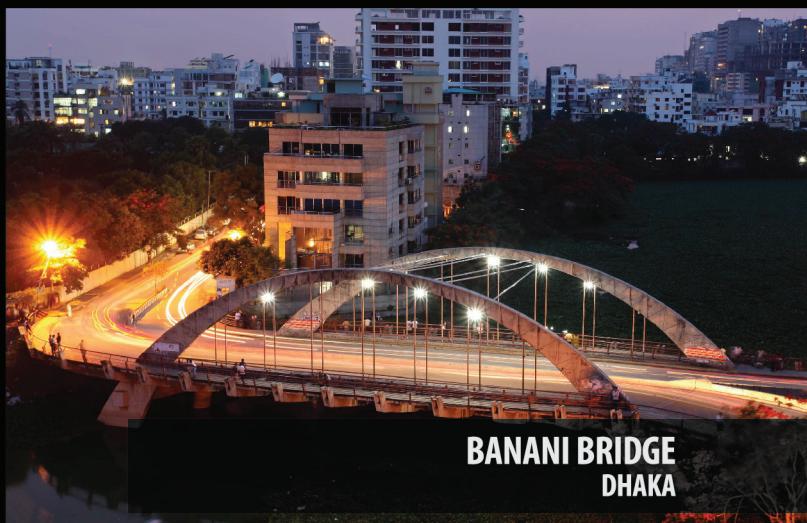
**LEBUKHALI BRIDGE**  
PATUAHALI



**SULTANA KAMAL BRIDGE**  
DHAKA



**PURBACHAL U-LOOP**  
DHAKA



**BANANI BRIDGE**  
DHAKA

# SIGNIFICANT PROJECTS



CITY CENTRE  
DHAKA



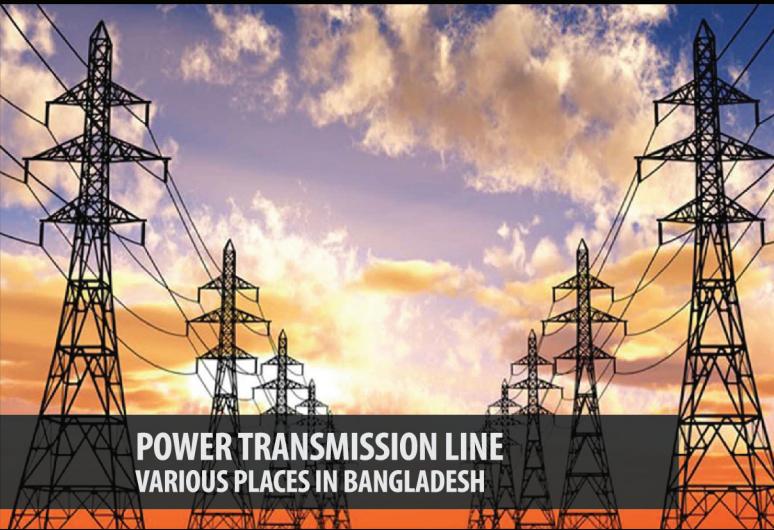
PAYRA DEEP SEA PORT  
PATUAKHALI



BANGABANDHU SHEIKH MUJIB MEDICAL  
UNIVERSITY HOSPITAL, DHAKA



RUPPUR NUCLEAR POWER PLANT  
PABNA

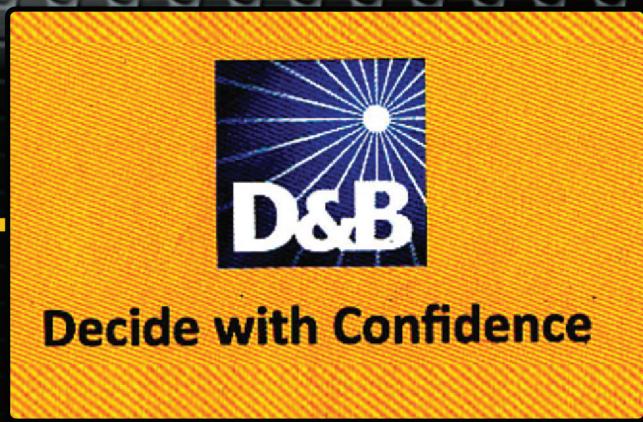


POWER TRANSMISSION LINE  
VARIOUS PLACES IN BANGLADESH



BEGUM ROKEYA UNIVERSITY  
RANGPUR

# THE TESTIMONIALS



**DUN & BRADSTREET CORPORATE AWARDS 2010**



# ANWAR ISPAT

STRENGTH WITHIN

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