





KSRM STEEL PLANT LTD.

KSRM STEEL PLANT LTD is an ISO9001:2015, ISO 14001 : 2015, OHSAS 18001 : 2007 certified organization under the concern of "The Kabir Group of Industries". With over 4 decades of experience, in the art of world quality steel manufacturing, the company is proud to be able to provide the consumer base with products of the highest quality, consistent with international standards of manufacturing. The company is also humbled at being able to stand as one of the largest steel re-bar manufacturers in Bangladesh.

The re-bars we produce at KSRM are manufactured under cutting edge European POMINI technology. With eighteen stand and completely automatic modern re-rolling mills we are able to produce over eight hundred thousand metric tons of steel in a year. Our B500CWR grade rebars are produced under the strict guidelines of ISO 6935-2:2015(E), BDS/ISO-6935-2:2016 BS4449:2005 +A3:2016 GRADE B500C. Our grade 60 re-bars on the other hand are produced under ASTM A615, ASTM A706, ISO 6935-2:2015(E) GRADE B420DWR. Our production line is able to chomp out 8mm, 10mm, 12mm, 16mm, 20mm, 22mm, 25mm, 28mm, 32mm, 40mm and 50mm sized re-bars.

Under the new Product Portfolio, we at **KSRM** are proud to introduce our latest product, "**KSRM PREMIUM 80 Grade**" & **KSRM B500DWR**. This high strength and high strain tackling rebar is produced in order to cater to the demands of the current market. The 80 Grade or B500DWR lineup conforms to The ASTM A-706 standards and results in a Yield Strength of an amazing 550 Mpa (80,000 psi). The Ultimate Tensile Strength stands at an awe-inspiring 690 Mpa (100,000 psi) and an Elongation Min. of 12%. These results dictate that The KSRM PREMIUM 80 Grade re-bars are perfect for the construction of mega-structures like metro rails, power plants, long bridges, tunnels, flyovers and even large scale buildings.

The KSRM re-bars are produced using imported billets mainly from Turkey, Malaysia, Korea, Russia, Ukraine and Taiwan as well as from our own billets of world standard technology & modernly equipped KSRM billet industries Ltd. These billets which come in the form factor of 150X150X12000mm & 160X160X12000 are well refined and have the correct chemical composition which in turn results in a international quality re-bars.

"Quality Control" is one of the most important factors in creating the world class steel that KSRM produces. Our QC Department is well equipped with modern state of the art testing devices such as the Universal Testing Machine which checks for Yield Strength, Ultimate Strength, Elongation at Maximum Force, Elongation after Fracture, etc. Our facilities also contain the regularly used Bending & Rebending Testing Machine, highly advanced Spectrometers that check for chemical composition, Metallurgical Microscopes for metallographic microstructure analysis and Non Metallic inclusions.

It is worth noting that our Tensile Tests which include the Yield Strength Test, Ultimate Strength Test and Elongation Percentage Check, are conducted every 20 minutes in terms of re-bar weight per meter. The Bend and Re-Bend Tests on the other hand are carried out every 2 hours of consecutive production in order to fulfill the requirements of international standards.

B500CWR (8mm-50mm)

REBAR CONFORMS TO FOLLOWING INTERNATIONAL STANDARD CODES

Standards & Grade	Country	Yield Strength (ReH) Min.	Tensile Strength (Rm) Min.	Ratio Rm/Re (Min.)	Elongation at Max Force (Agt) Min.	Total Elongation at GL=5D (A) Min.	Mandrel Diameter for Bend test (max.)	Mandrel Diameter for Re-Bend test (max.)
ISO 6935-2:2015(E) Grade B500CWR	International Organisation for Standardization	500 MPa (72,500psi)	YS x 1.15	1.15	7.0 %	14%	≤ 16mm: 3d 16 < d ≤ 32mm: 6d 32 < d ≤ 50mm: 7d	≤ 16mm: 5d 16 < d ≤ 25mm: 8d 25 < d ≤ 50mm: 10d
BDS/ISO 6935-2:2016 Grade B500CWR	Bangladesh	500 MPa (72,500psi)	YS x 1.15	1.15	7.0 %	14%	≤ 16mm: 3d 16 < d ≤ 32mm: 6d 32 < d ≤ 50mm: 7d	≤ 16mm: 5d 16 < d ≤ 25mm: 8d 25 < d ≤ 50mm: 10d
BS 4449: 2005+A3: 2016 Grade B500B	Britain	500 MPa (72,500psi)	YS x 1.08	1.08	5.0%	-	-	≤ 16 mm: 4d > 16 mm: 7d
BS 4449: 2005+A3: 2016 Grade B500C	Britain	500 MPa (72,500psi)	YS x 1.15	1.15	7.5%	-	-	≤ 16 mm: 4d > 16 mm: 7d
BS 4449:1997 Grade 460B	Britain	460 MPa (67,000psi)	YS x 1.08	1.08	5%	14%	-	≤ 16 mm: 4d > 16 mm: 7d
IS 1786: 2008 Grade Fe500D	India	500 MPa (72,500psi)	565 MPa (82,000psi)	1.10	-	16%	≤ 20 mm: 3d > 20 mm: 4d	≤ 10 mm: 4d > 10 mm: 6d
DIN 488 Grade BSt 500S	Germany	500 MPa (72,500psi)	550 MPa (80,000psi)	1.05	-	10%	-	6 < d ≤ 12 mm: 5d 14 < d ≤ 16 mm: 6d 20 < d ≤ 28 mm: 8d
GOST R52544-2006 Grade A500C	Russia	500 MPa (72,500psi)	600 MPa (87,000psi)	1.08	-	14%	≤ 12 mm: 5d 14 < d ≤ 16 mm: 6d 20 < d ≤ 25 mm: 8d >25 mm: 10 d	-
Target Range for KSRM B500CWR	-	520 – 560 MPa	YS x 1.15	1.15	8%	16%	As per standard	As per standard

▪ BDS= Bangladesh Standard

▪ ISO = International Organization for Standardization

▪ IS=Indian Standard

▪ DIN= German (Deutsches Institute fur Normung) The German Institute for Standardization

▪ ASTM =American Society for Testing & Materials

KSRM B420DWR/60G (8-32)mm

REBAR CONFORMS TO FOLLOWING INTERNATIONAL STANDARD CODES

Standards & Grade	Country	Yield Strength (ReH) Min.	Tensile Strength (Rm) Min.	Ratio Rm/ReH (min.)	Elongation at Max Force (Agt) Min.	Elongation after Fracture, A (min.)	Mandrel dia for Bend test (max.)	Mandrel dia for Rebend test (max.)
ASTM A615 Grade 60 [420]	USA	420 MPa (60,000psi)	620 MPa (90,000psi)	-	-	10≤d≤20mm:9% 22≤d≤25mm:8% 28≤d≤57mm:7% (GL=200 mm)	10≤d≤16mm:3.5d 19≤d≤25mm:5d 29≤d≤36mm:7d	-
ASTM A706 Grade 60 [420]	USA	420 MPa (60,000psi)	550 MPa (80,000psi)	1.25	-	10≤d≤20mm:14% 22≤d≤36mm:12% (GL=200 mm)	10≤d≤16mm:3d 19≤d≤25mm:4d 29≤d≤36mm:6d	-
ISO 6935-2: 2015(E)Grade B400DWR	International Organization for Standardization	400 MPa (58,000psi)	YS x 1.25	1.25	8%	17% (GL=5Dmm)	≤16mm:3d 16<d≤32mm:6d 32<d≤50 mm:7d	≤16mm:5d 16<d≤25mm: 8d 25<d≤50mm:10d
ISO 6935-2: 2015(E)Grade B420DWR	International Organization for Standardization	420 MPa (60,000psi)	YS x 1.25	1.25	8%	16% (GL=5D mm)	≤16mm:3d 16<d≤32 mm:6d 32<d≤50 mm:7d	≤16mm:5d 16<d≤25mm:8d 25<d≤50mm:10d
BDS ISO6935-2: 2016 Grade B400DWR	Bangladesh	400 MPa (58,000psi)	YS x 1.25	1.25	8%	17% (GL=5D mm)	≤16 mm:3d 16<d≤32 mm:6d 32<d≤50 mm:7d	≤16mm:5d 16<d≤25mm:8d 25<d≤50 mm:10d
BDS ISO6935-2:2016 Grade B420DWR	Bangladesh	420 MPa (60,000psi)	YS x 1.25	1.25	8%	16% (GL=5D mm)	≤16mm:3d 16<d≤32mm:6d 32<d≤50mm:7d	≤16mm:5d 16<d≤25mm:8d 25<d≤50mm:10d
GB 1499.2 – 2007 Grade HRB400	China	400 MPa (58,000psi)	540 MPa (78,000psi)	-	7.5%	16% (GL=5D mm)	6≤d≤25mm:4d 28≤d≤40mm:5d 40<d≤50mm:6d	6≤d≤25mm:4d 28≤d≤40mm:5d 40<d≤50mm:6d
GB 1499.2 – 2007 Grade HRB400E	China	400 MPa (58,000psi)	540 MPa (78,000psi)	1.25	9%	16% (GL=5D mm)	6≤d≤25 mm:4d 28≤d≤40mm:5d 40<d≤50mm:6d	6≤d≤25mm:4d 28≤d≤40mm:5d 40<d≤50mm:6d
DIN 488 Grade BSt 420S	Germany	420 MPa (60,000psi)	500 MPa (72,500psi)	1.05	-	10% (GL=5D mm)	-	6<d≤12mm:5d 14<d≤16mm:6d 20<d≤28mm:8d
Target Range of KSRM B420DWR/60G	-	440-470 MPa	630 MPa	1.35	9%	14% (GL=200 mm)	As per standard	As per standard

KSRM PREMIUM B500DWR/80G (10mm-32mm)

REBAR CONFORMS TO FOLLOWING INTERNATIONAL STANDARD CODES

Standards & Grade	Country	Yield Strength (ReH) Min.	Tensile Strength (Rm) Min.	Ratio Rm/ReH (min.)	Elongation at Max Force (Agt) Min.	% Elongation after Fracture (min.)	Mandrel dia for Bend test (mm)	Mandrel dia for Rebend test (mm)
ASTM A615 Grade 80[550]	USA	550MPa (80,000psi)	725MPa (105,000psi)	-	-	10-25mm:7% 32mm:6% (GL=200mm)	10≤d≤25mm:5d 32mm:7d	-
ASTM A706 Grade 80[550]	USA	550MPa (80,000psi)	690MPa (100,000psi)	1.25	-	12%(GL=200mm)	10≤d≤16mm:3.5d 19≤d≤25mm:5d 32mm:7d	-
IS 1786: 2008 Grade Fe550D	India	550MPa (80,000psi)	600MPa (87,000psi)	1.08	5%	14.5% (GL=5D)	≤20mm:3d >20mm:4d	≤10mm:4d >10mm:6d
Target range for KSRM PREMIUM B500DWR/80G	-	560-590 MPa	725MPa	1.27	8%	12% (GL=200mm)	As per standard	As per standard

KSRM B500DWR (08mm-32mm)

REBAR CONFORMS TO FOLLOWING INTERNATIONAL STANDARD CODES

Standard conform Steel grade	Country	Yield Strength (Re) Min.	Ultimate Tensile Strength (Rm) Min.	Ratio Rm/Re (min.)	Elongation at Max Force (Agt) Min.	% Elongation after Fracture (min.)	Mandrel dia for Bend test (mm)	Mandrel dia for Rebend test (mm)
ISO 6935-2: 2015(E) Grade B500DWR	International Organization for Standardization	500MPa (72,500psi)	YS x 1.25	1.25	8%	13% (GL=5D)	≤16mm:3d 16<d≤32mm:6d 32<d≤50mm:7d	≤16mm:5d 16<d≤25mm:8d 25<d≤50mm:10d
BDS ISO6935-2:2016 Grade B500DWR	Bangladesh	500MPa (72,500psi)	YS x 1.25	1.25	8%	13% (GL=5D)	≤16mm:3d 16<d≤32mm:6d 32<d≤50mm:7d	≤16mm:5d 16<d≤25mm:8d 25<d≤50mm:10d
GB 1499.2 – 2007 Grade HRB500	China	500MPa (72,500psi)	630MPa (91,500psi)	-	7.5%	16% (GL=5Dmm)	6≤d≤25mm:6d 28≤d≤40mm:7d 40<d≤50mm:8d	6≤d≤25mm:6d 28≤d≤40mm:7d 40<d≤50mm:8d
GB 1499.2 – 2007 Grade HRB500E	China	500MPa (72,500psi)	630 MPa (91,500psi)	1.25	9%	16% (GL=5Dmm)	6≤d≤25mm:6d 28≤d≤40mm:7d 40<d≤50mm:8d	6≤d≤25mm:6d 28≤d≤40mm:7d 40<d≤50mm:8d
JIS G3112 Grade SD490	Japan	490MPa (71,000psi)	620MPa (90,000psi)	-	-	12% (GL=5D)	≤25mm:2.5D >25mm:3D	-
Target range for KSRM B500DWR	-	520-560 MPa	YS X 1.27	1.27	8%	12% (GL=200mm)	As per standard	As per standard

BAR SIZE IN UNIT (MM)

Bar Nominal Dia	% Tolerance as per BDS/ ISO 6935-2:2006	Nominal Weight	Cross Sectional Area	App. Lengths Per M. Ton		Pcs Per Ton
				Meter	Feet	
mm	%	Kg/m	mm ²	Meter	Feet	Pcs
08	±8	0.395	50.30	2,532	8,307	210.94
10	±5	0.616	78.50	1,621	5,318	135.00
12	±5	0.888	113.10	1,126	3,694	93.75
16	±5	1.579	201.10	633	2,077	52.73
20	±5	2.466	314.20	405	1,330	33.75
22	±5	2.985	380.30	335	1,100	27.89
25	±4	3.854	490.90	259	850	21.60
28	±4	4.836	615.75	207	680	17.22
32	±4	6.313	804.20	158	518	13.18
40	±4	9.868	1256.6	101	333	8.44
50	±4	15.42	1964.00	64.85	212.71	5.40

PRODUCTION PROCESS



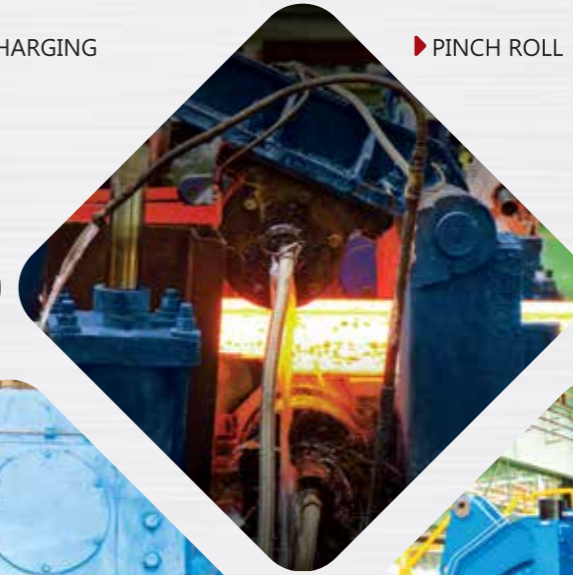
▶ BILLET CHARGING CRADLE



▶ WALKING BEAM TYPE BILLET REHEATING FURNACE



▶ BILLET DISCHARGING DOOR



▶ PINCH ROLL



▶ ROLLING MILL



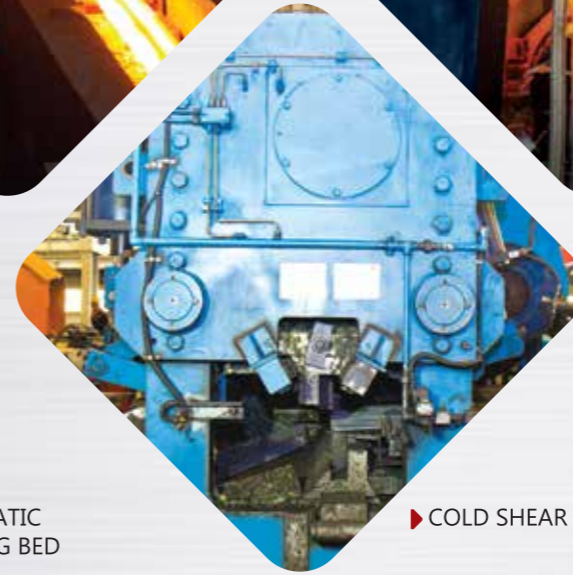
▶ TMT CHAMBER OR QT



▶ ROLLING MILL CONTROL ROOM



▶ AUTOMATIC COOLING BED



▶ COLD SHEAR



▶ AUTOMATIC TYING MACHINE

RAW MATERIALS (BILLET)
Size : (160 x 160 x 12000) mm³

- ▶ **Inspection of Billet/Quality Test**
Physical observation and chemical test by spectrometer
- ▶ **Billet Re-Heating Furnace**
Re-Heat the billet to 1150°C -1200°C
- ▶ **Pinch Roll #1**
Pinch Roll#1 is used to pinch the billet slowly to the Stand 1
- ▶ **Roughing Mill**
Stand 1-Stand 6 (stand 1,3,5 are horizontal and stand 2,4,6 are vertical)
- ▶ **Shear #1**
To cut the dull and crack head of the running stock
- ▶ **Intermediate Mill**
Stand 7-Stand 12 (stand 7,9,11 are horizontal and stand 8, 10, 12 are vertical)
- ▶ **Shear #2**
To cut the dull and crack head and tail of the running stock roughing
- ▶ **Finishing Mill**
Stand 13-Stand 18 (stand 13, 15, 17 are horizontal and stand 14, 16, 18 vertical)
- ▶ **TMT (Thermo Mechanical Treatment)**
Increase strength of the re-bar by quenching effect.
- ▶ **Cooling Bed**
Partially cool the re-bar by natural air
- ▶ **Quality Checking**
Surface finishing, surface geometry and physical strength and bend re-band test of re-bar
- ▶ **Cold Shear**
Cut to 12 meter or as per customer need
- ▶ **Bundling**
Bundled to 2.5 MT per bundle and attached materials identification tag
- ▶ **Stock**
Stacking into stock (According to size and Grade)
- ▶ **DELIVERY**

QUALITY CONTROL

► OE SPECTROMETER

Chemical analysis of different scraps, billets, bars and bath sample at least 2-3 times per heat to assure billet quality



► SPECTROLAB OE SPECTROMETER

Chemical analysis and reporting to Production Channel



► UNIVERSAL TESTING MACHINE AUTO GRIPPING, COMPUTER & ELECTRO-HYDRAULIC SERVO CONTROLLED WITH ELONGATION MEASURING EXTENSOMETER.

Tensile test

Yield strength,
Ultimate tensile strength
%Elongation after fracture at G.L=5D mm
%Elongation after fracture at G.L=203.2 mm
%Elongation at maximum force, EMF (Agt) at G.L=200mm





► **BEND AND RE-BENDING TESTING MACHINE
COMPUTER CONTROLLED**

Bend and Re-bend test is carried out as per ISO-6935:2-2015(E), BDS/ISO 6935:2-2006 and BS 4449:2005, ASTM A615 and ASTM A706



► **METALLURGICAL MICROSCOPE (OPTIKA)**

By Metallographic image analysis software we can analyze following things-

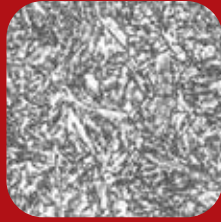
1. Phase analysis as per ASTM E562 (% of ferrite, pearlite, carbide, martensite, retained austenite etc.)
2. Tempered martensite layer thickness
3. Grain size analysis
4. Inclusion rating measurements
5. Decarburization etc.



Martensite Ring-1

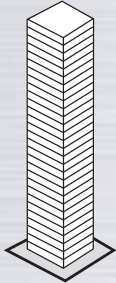


Microstructure of Fine Ferrite & Pearlite



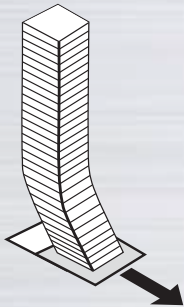
Microstructure of tempered Martensite

A SUPER-SATISFACTORY SUCCESS OF KSRM IN FATIGUE TEST



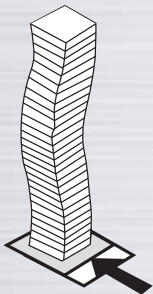
What is this fatigue or fatigue strength?

Fatigue is basically a synonym to exhaustion. But how can a metal get exhausted or tired? When some sort of stress is repeated on some point of any given material, that point gets more and more weakened, only natural. And if the recurrence be really high, beyond a certain stage that material might breakdown even at a lesser single pressure than that it was normally supposed to absorb. That is 'Fatigue'; as long as a material's physical performance is concerned.



Likewise, 'Fatigue Strength' in relation to a particular material is the level of cyclic stress which that material can tolerate. Generally it gives an impression about that material's long-term capacity to bear loads.

A multi-storey building naturally has to face various loads and stresses years after year, which all leave a cumulative affect like a fatigue. As a major and serious example moreover, an earthquake creates an extra-ordinary type of massive shake of your building. Shakes come as multi-directional waves and from all the sides of the structure in such a case, and this is called 'Cyclic Loading'. Fatigue strength of a rod is tested in a laboratory just by creating such cyclic loadings up to a real high number on the recurrence scale. And so, that suggest us about the rod's capacity to bear such real huge loads.



Why is this fatigue test a must before your construction starts?

When there has been some crack, however small, due to fatigue; a rod can collapse even at a much lower stress than its capacity. The structures that use cement casting – such as bridges, flyovers, multi-storey houses and those erected near seashores – are more vulnerable to cyclic loads. And hence, when a structure of any of these types is going to be built, a fatigue test for each rod to be used is just as essential as yield strength, tensile strength, elongation, bend and re-bend test.

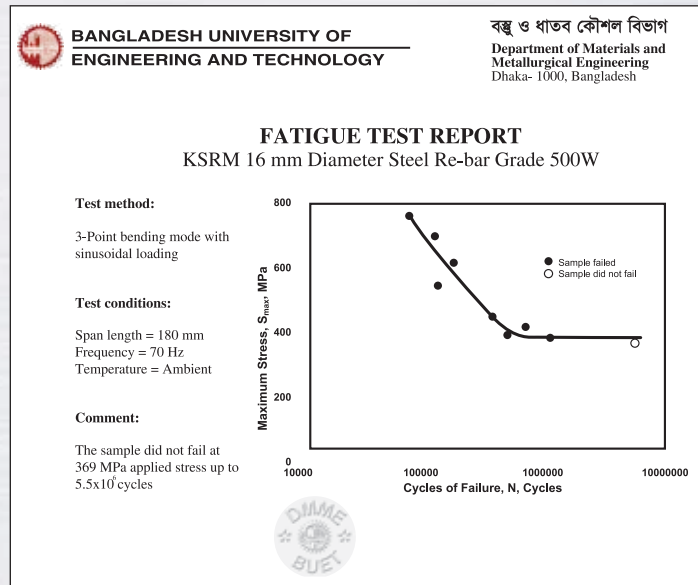
As already covered above, the severity of an earthquake's shakes and stresses is much higher than and different from that of any other type of load. And you also know, Bangladesh is one of the countries that are very prone to earthquakes. Various studies particularly suggest that Bangladesh is at a real high risk of heavy ones in near future. Then why would you risk your home and future, by using a rod that is not fatigue tested?

Buet Fatigue Test Report of KSRM

To be certain and clear about a rod's fatigue strength, you have to see not only how much cyclic loads it can take but also what the level of the applied load was. Take an example for the calculation. You are given two choices. One rod could bear 50 lakhs cyclic loads of 250 megapascals, and the other one survived 50 lakhs cyclic loads of 350 megapascals. Which one will you choose? Of course the second one, since that could take the same number of even heavier loads. This is why we have put an equal emphasis, while testing the fatigue strength of our rod, on the level of the cyclic loads side by side with their number.

A Super-satisfactory success of KSRM in Fatigue Test

In the BUET's Fatigue Test, **KSRM 500W has been able to bear 55 lakhs a plus cyclic loads of 369 megapascals**, much higher than any other rod of Bangladesh ever could. So, simply choose KSRM 500W for your construction, without any worries. Keep safe and in peace, year after year after year.



THE SUPPORT

KSRM endeavors in satisfying their customers by assuring constantly increasing logistics support with outstanding services across the country. Assuring customers by selling the best manufactured products with accurate weight is one of the main goal of KSRM.

- 📍 Head Office, Chattogram
- 📍 Corporate Office, Dhaka
 - 📍 Sylhet Office, Sylhet
 - 📍 Bogra Office, Bogra
- 📍 Comilla Office, Comilla
- 📍 Khulna Office, Khulna

- 📍 Factory, Sitakunda, Chattogram
- 📍 Warehouse, Kalurghat, Chattogram
- 📍 Warehouse, Borpa, Narayangonj

Our country wide dealers' network has enabled us to ensure on time product delivery door to door to our customers. We have 300 own trucks and trailers along with third party logistics (3PL) for carrying goods across the country.





PROMINENT CONSTRUCTIONS



▲ Radisson Blu Bay View, Chattogram



▲ Kuril Flyover, Dhaka



▲ Hatirjheel, Dhaka



▲ Bangabandhu Tunnel Under Karnaphuli River (Running)

- ▶ Metro Railway, Dhaka (Running)
- ▶ Padma Multipurpose Bridge Rail Link Project (Running)
- ▶ Matarbari Coal Based Power Plant (665X2MW) (Running)
- ▶ Payra Coal Based Power Plant (665X2MW) (Running)
- ▶ Ruppur Nuclear Power Plant Project (Running)
- ▶ Dhaka- Khulna (N8) Road Improvement Project (Running)
- ▶ First Dhaka Elevated Express Highway Project (Running)
- ▶ Greater Dhaka Sustainable Urban Transport Project (BRT Gazipur-Airport) (Running)
- ▶ Patenga Container Terminal Project (Army 34 Brigade) (Running)
- ▶ 3rd Sitalakka Bridge (Running)
- ▶ Dohazari-Cox's Bazar Rail Line Project (Running)
- ▶ Akhura- Laksam Rail Line Project (Running)
- ▶ Chittagong Elevated Express Way (Running)
- ▶ Bhandarjuri Water Treatment Plant Project , Chattogram (Running)
- ▶ Dasherbandi Water Treatment Plant Project, Dhaka (Running)
- ▶ Cross Border Road Network Improvement Project (Running)
- ▶ Payra Deep Sea Port Project (Running)
- ▶ Dhaka- Mawa- Bhanga 4 Lane Project (Running)
- ▶ Gulistan-Jatrabari Flyover, Dhaka
- ▶ Justice Building, Dhaka
- ▶ Golf Garden, Dhaka
- ▶ Police Plaza Concord, Dhaka
- ▶ Aktaruzzaman Chy. Flyover, Chattogram
- ▶ Chattogram Port Flyover, Chattogram
- ▶ Dewanhat Flyover, Chattogram
- ▶ Kadamtoli Flyover, Chattogram



▲ Moghbazar-Mouchak Flyover, Dhaka



▲ Padma Bridge



▲ Radisson Blu, Dhaka



▲ Dohazari-Cox's Bazar Railway, Cox's Bazar (Running)



▲ World Trade Centre, Chattogram

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Phone : +88 031 727786, 718280, Hotline : 01929 921890



শেকড় থেকে শিখরে