

# **BENXI BEITAI DUCTILE CAST IRON PIPES CO., LTD.**

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# BENXI BEITAI DUCTILE CAST IRON PIPES CO., LTD.

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## COMPANY BRIEF

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- Benxi Beitai Ductile Cast Iron Pipes Co., Ltd. is a state-owned subsidiary company of Benxi Iron and Steel Group Corporation. The company was put into operation in October 1994, and annual production capacity is 650,000 tons now, is one of the ductile cast iron pipe production bases in China.



## PRODUCTION INTRODUCTION

**Ductile Cast Iron Pipes are produced by two different ways, water-cooled metal mold centrifugal casting and sand centrifugal casting. The product's diameter ranges from DN80-DN2600mm.**



## PRODUCTION INTRODUCTION

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### ***T-type joint (Push on)***

The T-type joint Pipes (Push on) ranging from DN80 to DN1800 mm are flexible jointed with sockets and spigots. They are the first choice in urban water pipe networks due to their convenient installation, strong seismic performances, sealability and corrosion resistance.



## PRODUCTION INTRODUCTION

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### ***K-type joint***

The K-type joint Pipes ranging from DN1200 to DN2600m are mechanically joint, and they play an irreplaceable role in urban water pipe networks due to their firm installation and excellent seismic performances.

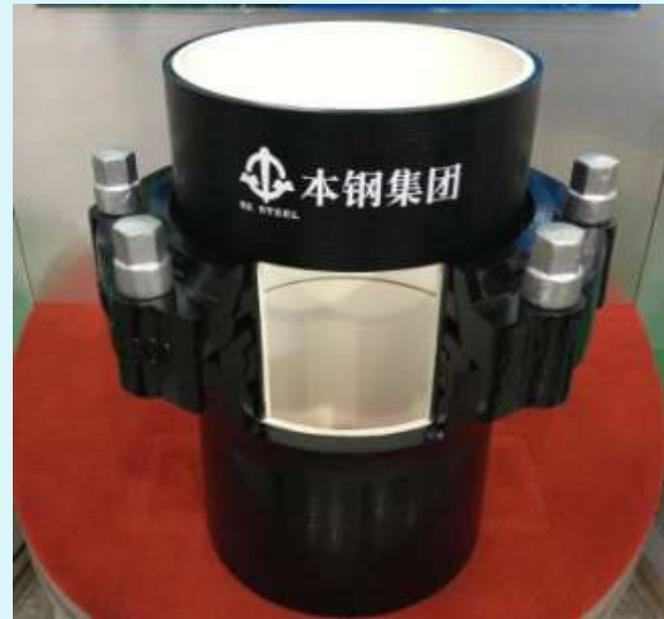


## PRODUCTION INTRODUCTION

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### ***Self-Restrained type joint***

The Self-Restrained Joint Pipes ranging from DN80 to DN1600mm, to be used mainly for carrying water with pipelines projects that are submerged in water harsh environment and climate.

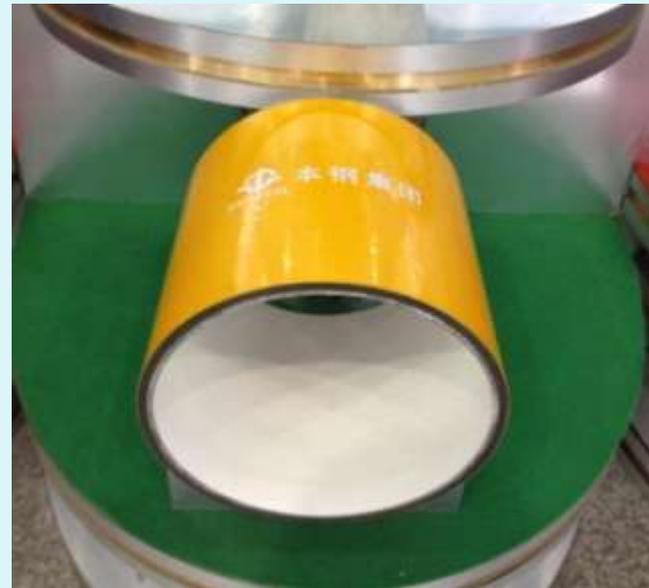


## PRODUCTION INTRODUCTION

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### ***PU Coating***

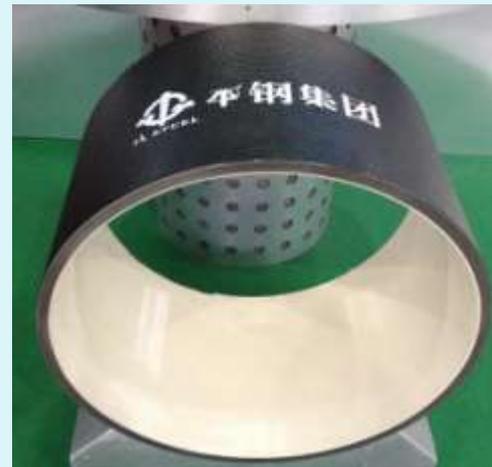
The polyurethane (PU) coating pipes with diameter ranging from DN80-DN2600mm, which are mainly used in the soil environment with strong acid and strong alkaline.



## PRODUCTION INTRODUCTION

### ***Ceramic Epoxy Lining***

The ceramic epoxy lining pipes with diameter ranging from DN200- DN2600mm. The black color lining pipes are perfectly suitable for carry industrial waste water and sanitary sewage water. The white color lining pipes for carrying potable water. The lining is smooth, hard, abrasion-resistance and it have very good capacity for anti-corrosion.



## PRODUCTION INTRODUCTION

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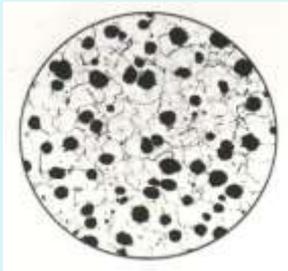
### ***N-type joint***

- The  $S_I$ ,  $S_{II}$ ,  $N_I$  and  $N_{II}$  pipes are mechanically joint and range from DN100-DN700mm, widely used in urban gas pipeline projects.

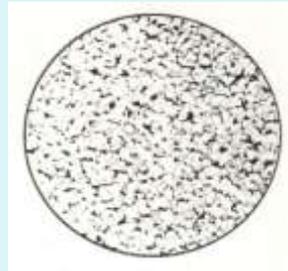


## ADVANTAGES OF DI PIPES

- ▣ ***Better Mechanical properties:***
- ▣ Microstructure comparison for Ductile Iron Pipes, Steel Pipes and Grey cast Iron Pipes.



Ductile Iron Pipes



Steel Pipes



Grey Iron Pipes

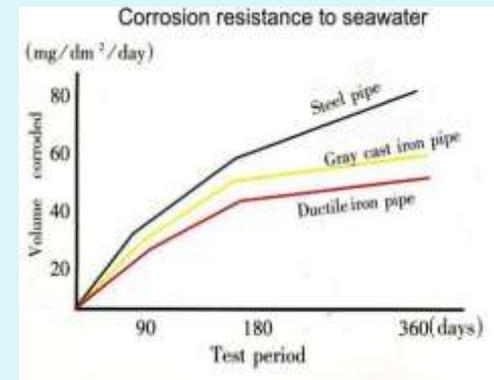
# ADVANTAGES OF DI PIPES

## Mechanical comparison

Type of pipes	Ductile Iron Pipe	Grey Iron Pipe	Steel Pipe
Tensile strength (N/mm <sup>2</sup> )	≥420	150-260	≥400
Elongation(%)	(DN≤1000) ≥10 (DN>1000) ≥7	Negligible	≥18
Hardness (HB)	≤230	≤230	Approx. 140

## High Corrosion Resistance

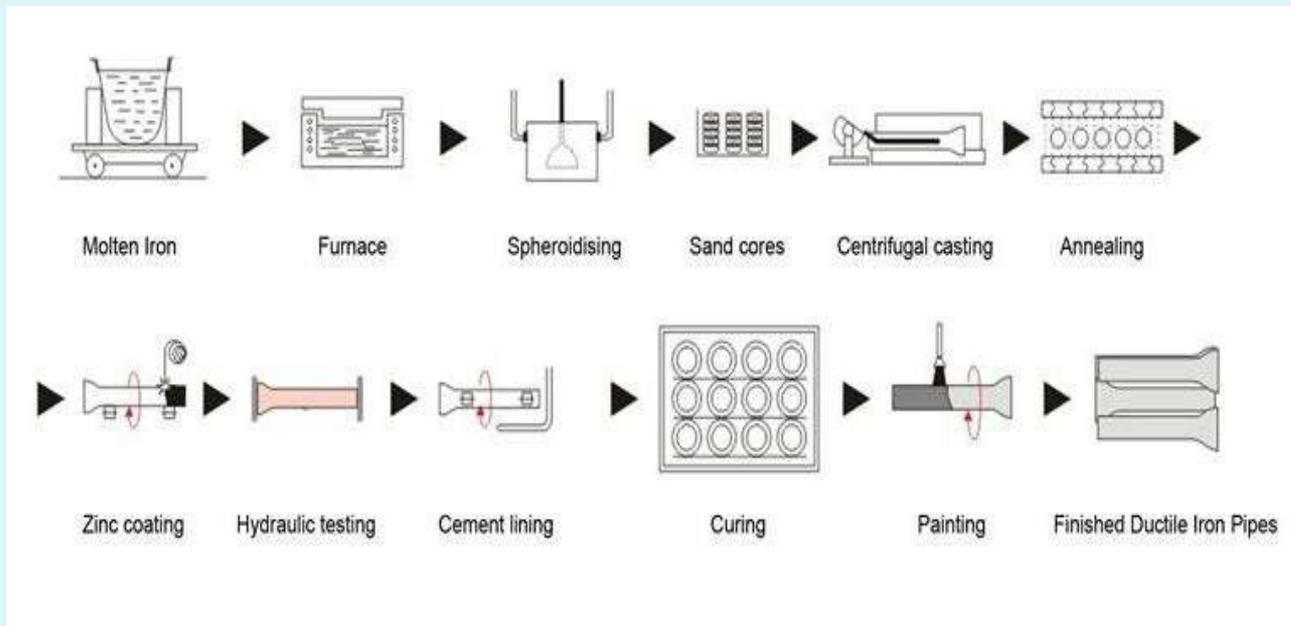
### The comparison of seawater corrosion resistance



Type of pipe	Corroded volume when merged into sea water (gr/cm <sup>2</sup> )	
	After 45 days	After 90 days
Ductile iron pipe	0.0060	0.0090
Grey Iron Pipes	0.0060	0.0103
Steel Pipes	0.0294	0.0396

# MANUFACTURE PROCESSES

## PROCESSES



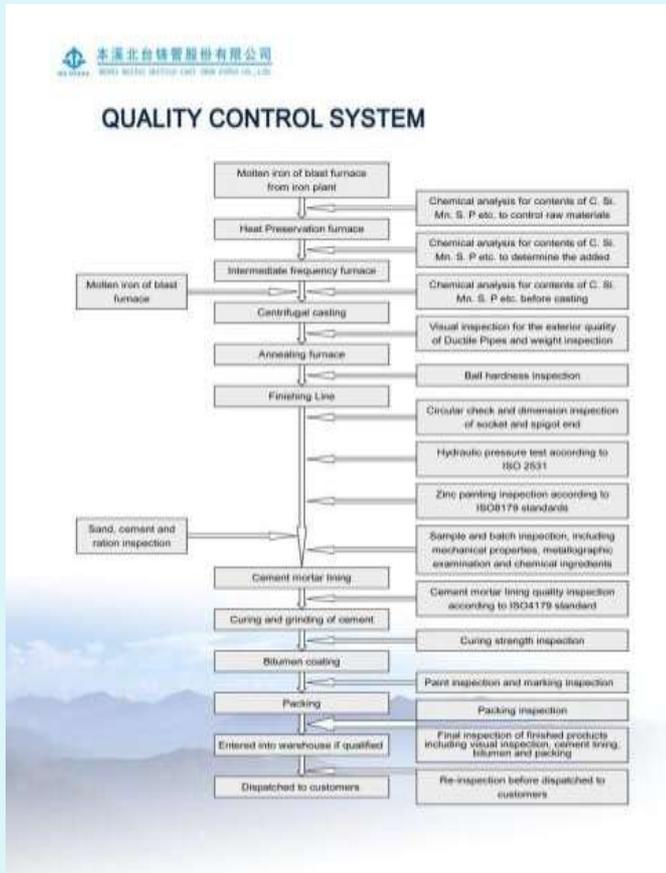
# MANUFACTURE PROCESSES

## ▮ *Main Equipments List*

Main Equipments	Qty.	Place of Made in	Annual Capacity
45-Tons Melted Iron Storing Electric Furnace	3	Changchun City,China	650,000 tons
10-Tons Medium Frequency Electric Furnace	10	PILLAR in USA	500,000 tons
20-Tons Medium Frequency Electric Furnace	3	Yingda in Shanghai, Cina	150,000 tons
Water Cooling Centrifugal Casting Machine	10	ROF in Germany	500,000 tons
Hot Mould Centrifugal Casting Machine	4	Dalian, China	150,000 tons
Continuous Annealing Furnace	3	IOB in Germany	500,000 tons
Trolley-Style Annealing Furnace	4	Dalian, China	150,000 tons
Finishing Line	5	BRACKER in Germany	650,000 tons
Cement Mortar Lining Machine	5	BRACKER in Germany	650,000 tons
Bitumen Painting Machine	4	BRACKER in Germany	650,000 tons



# QUALITY CONTROL SYSTEM and TEST AND INSPECTION PLAN (QAP)



**TEST AND INSPECTION PLAN(QAP)**

Item No.	Description	Objective	Quality Control Processing (By Mill)
1	Raw material used for Ductile pipes	Property or chemical composition for main elements	Review records as per ISO9001 quality control file
2	Induction furnace and treated metal	Molten metal temperature	In manufacturing as per ISO9001 quality operation file
		Chemical composition of molten metal	Analyze the samples per furnace as per the standards of manufacturer's
		Spheroidizing & fluidity	Analyze the samples per furnace as per the standards of manufacturer's
3	Casting	Check for surface defect finish & integrity	Visual check and weight check
4	Duct pipes	Heat treatment (annealing)	Check Micro-structure of samples as per the samples as per ISO standard
		Mechanical test	Check Micro-structure of samples as per the samples as per ISO standard
		Hydrostatic test	100% pressure test
		Size and dimension	Checking dimension of length and joint, OD, wall thickness, appearance
5	Zinc spraying	Zinc coating	Checking the sample pipes' zinc spraying mass
6	Lining and coating	Cement lining	100% surface defects visual check, check thickness of the lining randomly as per ISO standard
		Bitumen coating	100% surface defects visual check, check randomly for coating thickness
7	Making and packing	Identification	100% visual check

All the tests and inspections are according to ISO2531 and ISO9001. Other standards will be followed accordingly if requested.

# QUALITY CONTROL SYSTEM

## *Chemical Composition*

The factory internal control reference of main chemical composition for DI pipes is as following:

Composition	Rate (%)
C	3.4-4.0
Si	2.1-2.5
Mn	Max. 0.30
S	Max. 0.02
P	Max. 0.06
Mg	0.03-0.08



## QUALITY CONTROL SYSTEM

### *Mechanical properties*

The mechanical properties of pipes shall be shown in the table:

Type of Cast	Minimum Tensile strength	Minimum Elongation Percent After fracture,A		Hardness Max.(HB)
	DN80-2600mm	DN80-1000mm	DN1100-2600mm	
Pipes centrifugally cast	420Mpa	10%	7%	230
Pipes not centrifugally cast, fittings and accessories	420Mpa	5%	5%	250

Note:

1. By agreement between manufacturer and purchaser, the 0.2% proof stress may be measured. It shall be not less than 270 Mpa when  $A \geq 12\%$  for DN60-1000mm or 10% for DN > 1000mm.
2. For centrifugally cast pipes of DN60-1000mm, the minimum elongation after fracture shall be 7% for thickness classes greater than K12



## QUALITY CONTROL SYSTEM

### ***Hydrostatic test pressure at works***

All pipes shall be subjected to a works hydrostatic test for a duration of at least 10 seconds at the minimum internal test pressure given in the table:

DN(mm)	Minimum work test pressure(Bar)		
	ISO2531-1998		ISO2531-2009
	K < 9	K ≥ 9	Preferred pressure classes
≤300	$0.5 (K+1)^2$	50	40
350-600	$0.5K^2$	40	30
700-1000	$0.5 (K-1)^2$	32	25
1200-2000	$0.5 (K-2)^2$	25	25
2200-2600	$0.5 (K-3)^2$	18	25



# CERTIFICATES

All the pipes manufacture according to ISO2531-1998, ISO2531-2009, BS EN545-1996, BS EN545-2010, BS EN598-2007+2009, BS 4772, ISO7186-2011, ISO4179-2005, ISO8179-2004



# CERTIFICATES



# CUSTOMER'S CERTIFICATES



**MUSHRIF** **مشرف**  
TRADING & CONTRACTING CO. P.S.C.  
P.O. Box 401000

Kuwait  
16/ Jan 2010

**CERTIFICATE**

**To Whom it concerns:**

Our company **Mushrif Trading & Contracting Co. (KCCC)** of Kuwait certify that we have installed a main water pipeline working under pressure in ductile iron pipes for Kuwait 10-10 and 10-11 Project (Kuwait Ministry of Public Works) during January 2009 to July 2009.

These pipes have been manufactured by **RENZI BETTAI DUCTILE IRON PIPES CO. LTD.**, Chinese manufacturer of these type of pipes according the latest ISO Standards and with fulfillment of ISO 9001:2000 Quality Standards in the following diameters and quantities:

ITEM	DESCRIPTION	QUANTITIES	
		DN (mm)	m
1	Ductile Cast Iron Pipes, Push-On, K 9 Class	400	8400
2	Ductile Cast Iron Pipes, Push-On, K 9 Class	400	22500
3	Ductile Cast Iron Pipes, Push-On, K 9 Class	2500	11400

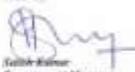
All pipes are working without any problems.

Also note that we have currently ordered for our 10/10 Project, Ductile Cast Iron Pipes of 1400mm dia - K9 Class - internally lined with Corrosion Epoxy - 52,000 Meters. Out of which we have already received 3,494 Mtr and the balance expected to be delivered before end of Mar 2010.

Please if you need more information feel free to contact me immediately.

Mt. Phone is + 965 2 4786172 and my Fax number +965 2 4741429.

Sincerely,

  
**Saleh Alamer**  
Procurement Manager





P.O. Box 22276, P.O. 22276, Kuwait  
Tel: (965) 4781372 - 42227733 - (965) 4745423  
E-mail: info@mushrif.com - mushrif@kuwait.net



**MICHAEL APOSTOLIDES & CO LTD.**  
**GENERAL COMMISSION AGENTS**  
**SINCE 1954**

Head Office:  
17B, NIKOS AVENUE  
1087, NICOSIA (CYPRUS)

P. O. BOX 20373  
CV-2040 NICOSIA,  
CYPRUS

TEL. : + 357 - 22 49000  
FAX : + 357 - 22 42378  
E-MAIL : info@gaingreece.com

Nicosia, 18 January 2010

**CERTIFICATE**

**To Whom it may concern:**

Our company, **Michael Apostolides & Co. Ltd** of Cyprus certify that we have installed a main pipeline for potable water, working under pressure for Kamnissia Division Weir and Corrosia Corrosyria 39/0076 Project from May 2004 to August 2005 and executed to the Ministry of Agriculture, Cyprus.

The pipes were supplied by **RENZI BETTAI DUCTILE IRON PIPES CO. LTD.**, Chinese manufacturer of these type of pipes according the latest ISO Standards and with fulfillment of ISO 9001:2000 Quality Standards in the following diameters and quantities:

ITEM	DESCRIPTION	QUANTITIES	
		DN (mm)	m
1	Ductile Cast Iron Pipes, K 9 Class	170	12
2	Ductile Cast Iron Pipes, K 9 Class	400	12
3	Ductile Cast Iron Pipes, K 9 Class	500	102
4	Ductile Cast Iron Pipes, K 9 Class	600	25416
5	Ductile Cast Iron Pipes, K 9 Class	700	2576

All pipes are working properly up to day without problems.

If you need more information please feel free to contact us.

Our Phone is + 357 2209080 and our Fax number +357 2242378.

Yours sincerely,

**Michael Apostolides & Co Ltd**

  
**Managing Director**  
 Mr. Christos Giannagas  
 General Manager

# CUSTOMER'S CERTIFICATES



**UNIPUMPS  
NIGERIA LIMITED**  
Administrative Office & Factory  
Plot 10, Amokoro Road, Lagos State,  
Nigeria. Tel: 01896 145 0287  
Fax: 01896 145 0530  
No. 25, OROKUN  
Road, Offshore  
Lagos State, Nigeria. Tel: 01896 145 0530  
Fax: 01896 145 0530. Email: info@unipumps.com

CN128910111288  
Nov. 12, 2018

**To whomsoever it may concern**

**Subject: Batai Beital Ductile Iron pipes and fittings in Nigeria Market**

WE UNIPUMPS NIGERIA LIMITED is a leading Civil Construction Companies in NIGERIA. We are dealing with M/s. Batai Beital Ductile Cast Iron Pipes Co from 2009 onwards.

So far we have imported more than 1000 MT of Ductile Iron Pipes and fittings of DN 150mm. We always found that the Quality of the material is of high standard, delivery is prompt and response to any technical queries and service support are immediate.

Batai Beital Ductile Cast Iron Pipes Co, Ltd has got a good reputation in Nigerian market as a trusted supplier.

Sincerely yours,  
For **UNIPUMPS NIGERIA LIMITED**

  
**N. Nasser E. Al-Abdi**  
Managing Director

*Water for Survival*  
BRANCHES - "ENNAJID" "KADUNA" "DAMATURU"



صندوق الترخيص ١٠٢١٢١  
هاتف ١٠٢١٢١٠٠٠  
١٠٢١٢١٠٠٠  
١٠٢١٢١٠٠٠  
١٠٢١٢١٠٠٠

**مؤسسة الموردة للتجارة**  
**AL-MOWAREDAH FOR TRADING EST.**

P.O Box 85222 Riyadh 11591  
Tel: (9666) 1-455-2287  
(9666) 1-455-0530  
Fax: (9666) 1-454-2888

**CERTIFICATE**

To Whom it concerns:

Our company Al- Mowaredah Trading Est. certify that we have provided many drink water pipelines working under pressure in ductile iron pipes for various projects Saudi Arabia and executed during June/December 2009.

The pipes were supplied by BATAI BEITAL DUCTILE IRON PIPES CO. LTD. Chinese manufacturer of these type of pipes according the latest ISO Standards and with fulfillment of ISO 9001:2000 Quality Standards in the following diameters and quantities.

ITEM	DESCRIPTION	DN (mm)	QUANTITIES m
1	Ductile Cast Iron Pipes, Push On, K 9 Class	250	16000
2	Ductile Cast Iron Pipes, Push On, K 9 Class	350	43300
3	Ductile Cast Iron Pipes, Push On, K 9 Class	450	27500
4	Ductile Cast Iron Pipes, Push On, K 9 Class	600	19000
5	Ductile Cast Iron Pipes, Push On, K 9 Class	7200	6700
6	Ductile Cast Iron Pipes, Push On, K 9 Class	1400	19708
7	Ductile Cast Iron Pipes, Push On, K 9 Class	1600	1658
8	Ductile Cast Iron Pipes, Push On, K 9 Class	1800	12

All installed pipes are working currently without any problems.

Please if you need more information feel free to contact me immediately.

My Phone is +00 966 1 456600 and my Fax number +00 966 1 4543888

Sincerely

  
**Mr. NASSER E. AL-ABDI**  
Engineering Chief

  
**مؤسسة الموردة للتجارة**  
AL-MOWAREDAH FOR TRADING EST.

## MAIN ENGINEERING

- DN 1400mm Portable Water in KSA  
70 km (2010 YEAR)



## MAIN ENGINEERING

- **The State of Kuwait SE100 project**  
**DN1400mm 32 km**  
**Ceramic Epoxy coating**



## MAIN ENGINEERING

- **Jordan DN150-1500mm sewage water project, EN598 High Aluminum lining, Red Epoxy coating**



## MAIN ENGINEERING

- **KSA DN1100-1200mm potable water project**



## MAIN ENGINEERING

- ▮ Sinkiang Urmuchi DN2400 potable water project



## MAIN ENGINEERING

- Algeria DN1200 project  
PU coating

