

PIPE PILE



Hebei Abter Steel Co.,Ltd.
The Biggest Large Diameter Pipe Piling Manufacturer in China.
Your Final Destination for Steel Piling Solutions



King of Pipe Piles

Project :China South Sea Project

Pipe Piling Dimensions:

Diameter:21m

Length:85m

Weight:705tons/pipe

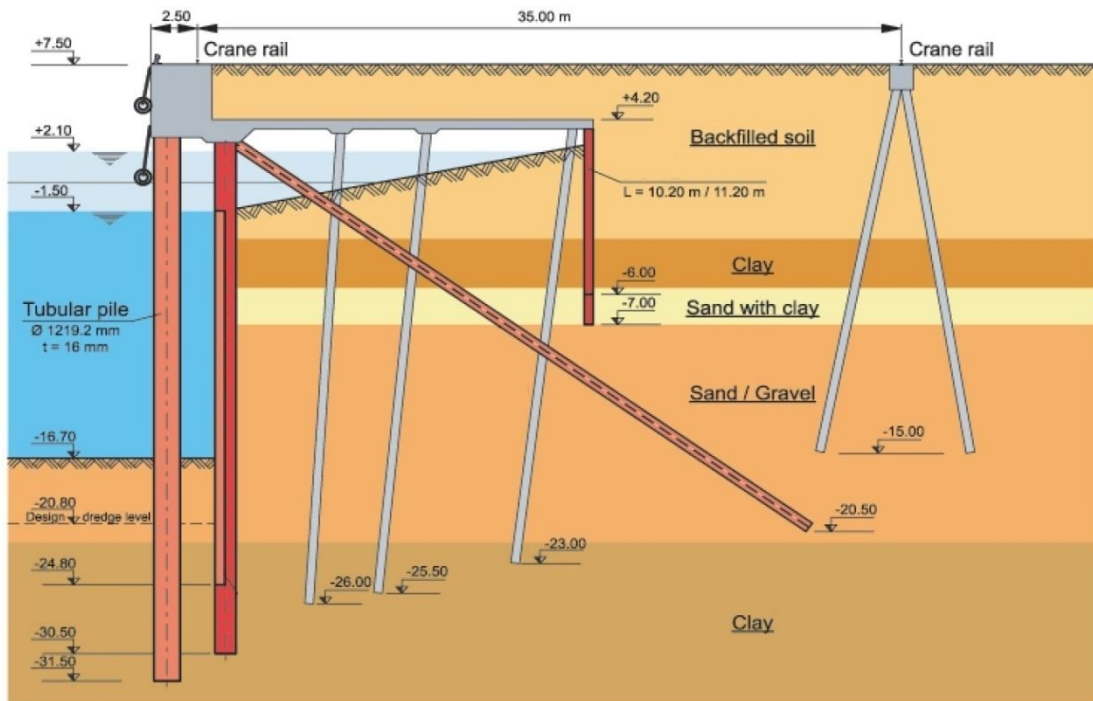
Made of 30 Smaller Cells, All are
Produced in Grand Piling's factory

Biggest Pipe Ever all over the
World

STEEL PIPE PILING

Steel pipe piles have been used as main retaining elements in foundation design due to its ability to withstand high vertical loads as well as retaining soil and earth pressures when used in conjunction with sheet piles. As one of main players of piling products in the world market, Nanjing Grand Piling Co., Ltd. surely can fulfill all your request on pipe pilings. Most pipe piles are SSAW (Spiral

Submerged Arc Welded) pipes, since spiral pipes are very easy to achieve big length without circumferential welds, also cheaper. While in some cases, stronger pipe pilings are needed, here comes the LSAW (Longitudinal Submerged Arc Welded) pipes. Grand Piling can produce both Spiral welded pipes and Longitudinal welded pipes, dimensions are steel grades are almost no limit.



OUR ADVANTAGES

- With our pipe mill strategically located near the port and our strong pipe production ability, No limit on dimensions, This is especially important in deep water and in big projects. The biggest Pipe we have produced, length up to 100m,diameter up to 21m.Any steel grade,X70 or S460 or A690,as long as you name it, we will produce for you. Our SSAW pipe machines can produce up to 26mm thickness, our LSAW machines can produce up to 80mm thickness.
- We have been in the steel piling industry for over 15 years, and we are in good contact with numerous piling contractors, the big construction companies in the ENR list, design institutes etc, we know your needs and will fulfill it perfectly.
- Our sheet piling factory will produce the required sheet piles sizes, and corner sections as well. So that we will ship all in one shipment, you just need to install them at jobsites
- Further fabrications, like piling shoes, lifting ligs, weld beads, beveled ends,

corner sections, paintings...etc we can all do in our workshops.SGS or BV

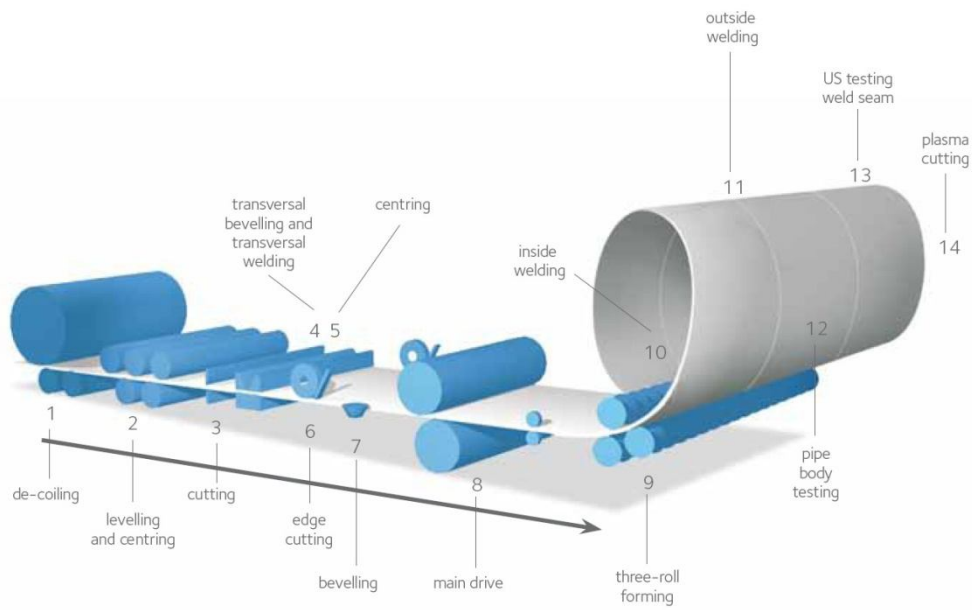
Inspection report is normally supplied.

Our factory for steel pipe pilings



SSAW PIPE PILES

Production Process of Spiral Steel Pipe Piling



Production Lines



Workshops

50m Long Pipe Piles lay outside of factory, waiting to be shipped



PRODUCTION TECHNOLOGY

The welding of the spirally welded pipes is based on the Double-Sided Submerged Arc Welding (DSAW) process.

The principle

Arc welding works by using electric current to produce an electric arc in a gas environment. The arc's heat brings the metal to fusion point. A key question is how to increase both the concentration and energy intensity of the arc.

DSAW's better penetration makes it possible to achieve higher weld travel speeds without impairing quality, thus improving productivity and lowering costs.

Multi arc welding

The spiral Mill of Nanjing Grand Steel Piling

combines the advantages of DC and AC arc combinations

Both on the inside and the outside of the multi arc principle is used. The first welding pass is done by using a DC arc. Herewith a large and concentrated penetration can be achieved. The result of the multi arc welding on both sides of the coils is a full penetration weld of a very high quality produced in a cost effective way.

The flexibility of the mill is very high because of this use of this system. A large range of coil thickness (between 10 and 26mm) can be transformed in spirally welded pipes in an economic way by choosing the right parameter

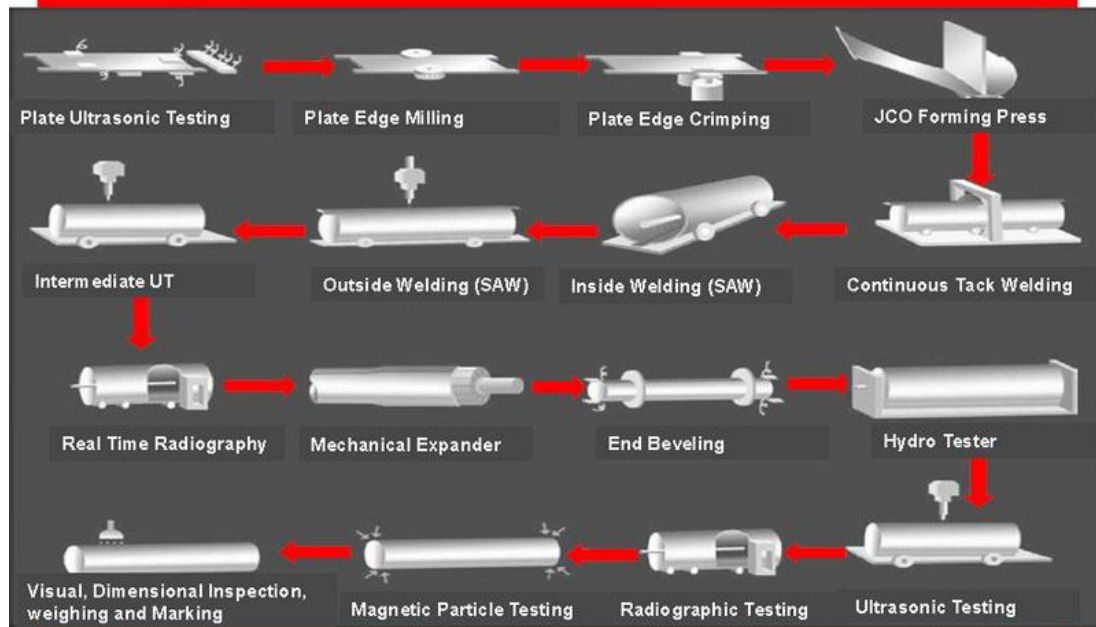
Busy Production in Grand Piling's spiral welded pipe works



LSAW PIPE PILES

When steel plates are thicker, Spiral welding technology can not do it, We have three lines of LSAW production lines. When diameter is below 1200mm, one pipe can reach 12m. If diameter is bigger, then the materials width

will be too big to delivery, then one segments can only be 2-2.5m, several segments weld together to make longer pipes. In Grand Piling's factory, LSAW pipes can also be over 80m by welding.



Production Process of LSAW pipes



Our International Leading Level JCO lines(for LSAW pipes)

Nanjing Grand Steel Piling has 4 lines for SSAW pipes, 3 lines for LSAW pipes, Annual Production ability up to 300,000 tons. There is no order too big or too small for us. The

biggest job we have supplied to Vancouver, Canada is over 620,000 tons, Project lasted for 3 years, so we have many orders in hundreds tons.



80mm Thick Steel Pipe



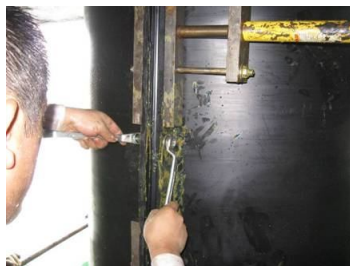
2m pipe segments welded together(big diameter)

PAINTINGS

In International steel piling industry, most paintings are international paint, Jotun paint, Hempel, etc. In our works, we can apply any anti-corrosion methods, including petrolatum products, like Denso Tape



Our Special Painting Facility Allows Painting up to 80m



Applying Denso Petrolatum Tapes

INSPECTIONS

To Guarantee our steel pipes has the best quality and our clients full satisfaction, Nanjing Grand Steel Piling Co., Ltd. will send clients full ITP(Inspection and Test Plan) and MPS (Manufacturer Procedure and Specifications). So that from the very beginning of steel coils, every point is under

control. Grand Steel Piling follows strictly the requirements listed in API5L PSL1 /EN10219/ASTM A252 Standards. Clients can dispatch engineers or Third Party Inspection Companies to our works as per the procedures listed in the documents. Contact us for samples of ITP or MPS no



Our in-house testing laboratory: Make sure all as per standard, as per contract.

ALL KINDS OF PILING ACCESORIES





LOGISTICS

Pipe pilings normally have very big weight, volume is normally much bigger than weight. Under such cases, delivery is a very challenging. Grand Pilings works closely with our port Authorities, and different carriers. We also have our own port for bulk vessels, and special frame cranes for single pipe up to 100m.



85m long pipes on vessels



One order, one ship



One ship only carry 3 big pipes.



Our own frame cranes for 100m long pipes

MECHANICAL PROPERTIS

Steel grade according to EN10219-1	Minimum yield strength R_{eH} ($T \leq 16\text{mm}$) N/mm ²	Minimum yield strength R_{eH} ($16 < T \leq 40\text{mm}$) N/mm ²	Minimum ultimate tensile strength R_m ($3 \leq T \leq 40\text{mm}$) N/mm ²	Minimum elongation ($T \leq 40\text{mm}$) %
S235JRH	235	225	340-47-	22
S275JOH/J2H	275	265	410-560	20
S355JOH/JEH	355	345	490-630	20
S420MH	420	400	500-660	19
S460MH	460	440	530-720	17
Steel grade according to API5L, PSL1	Minimum yield strength R_{eH} N/mm ²		Minimum ultimate tensile strength R_m N/mm ²	Minimum elongation %
B	245		415	23
X42	290		415	23
X46	320		435	22
X52	360		460	21
X56	390		490	19
X60	415		520	18
X65	450		535	19
X70	485		570	17

1)PSL:Product Specification Level
2)T:Thickness
3)Depends on tensile test piece cross sectional area

CHEMICAL PROPERTIES

Steel grade according to EN10219-1	C Max%	Mn Max %	P Max %	S Max %	Si Max %	N Max %	CEV Max %
S235JRH	0.17	1.40	0.045	0.045	-	0.009	0.35
S275JOH/J2H	0.20	1.50	0.040	0.040	-	0.009	0.40
S355JOH/JEH	0.22	1.60	0.040	0.040	0.55	0.009	0.45
S420MH	0.16	1.70	0.035	0.030	0.50	0.020	0.43
S460MH	0.16	1.70	0.035	0.030	0.60	0.025	-
Steel grade according to API5L, PSL1	C Max%	Mn Max %	P Max %	S Max %	Ti+V+Nb Max %		
B	0.26	1.20	0.030	0.030	0.15		
X42	0.26	1.30	0.030	0.030	0.15		
X46	0.26	1.40	0.030	0.030	0.15		
X52	0.26	1.40	0.030	0.030	0.15		
X56	0.26	1.40	0.030	0.030	0.15		
X60	0.26	1.40	0.030	0.030	0.15		
X65	0.26	1.45	0.030	0.030	0.15		
X70	0.26	1.65	0.030	0.030	0.15		

- 1) According to API 5L: For each reduction of 0.01% below the specified maximum carbon content, an increase of 0.05% above the specified maximum manganese content is permissible, up to a maximum of 1.50% for grade X42 to X52, 1.65% for X56 to X65 and 2.00% for X70
2) Unless otherwise agreed, the sum of the niobium and vanadium contents shall be $\leq 0.06\%$.
3) Unless otherwise agreed

GEOMETRIC TOLERANCES

Standard	Outside diameter D	Wall Thickness T	Straightness	Out-of-roundness	Mass	Maximum weld bead height
EN10219-2	+/-1% Max +/-10.0mm	+/-1% Max +/-2.0mm	0.20% of total length	+/-2%	+/-6%	$T \leq 14.2\text{mm}$:3.5mm $T > 14.2\text{mm}$:4.8mm
API5L	$\leq 1422\text{mm}$ +/-0.5% $\leq 4.0\text{mm}$	$< 15.0\text{mm}$: +/-10% $\geq 15.0\text{mm}$: +/-1.5mm	0.20% of total length	D/t ≤ 75 D $< 1422\text{mm}$	+/-1.5% +10%	$T \leq 13.0\text{mm}$:3.5mm $T > 13.0\text{mm}$:4.8mm
ISO3183	$> 1422\text{mm}$ As agreed			Else	$\leq 15.0\text{mm}$ -3.5%	

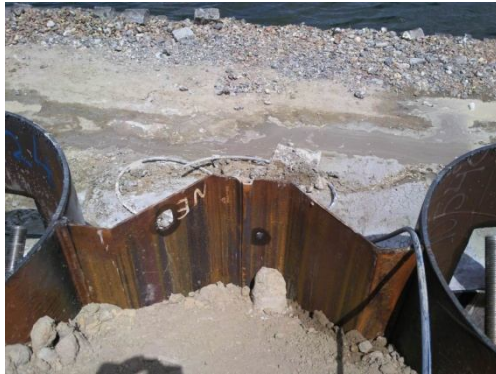
COMBINED WALLS

A combined wall is the retaining wall solution when a high horizontal or vertical bearing capacity is required. A combined wall combines pipes (primary elements) with intermediate sheet piles (secondary elements).

Structurally the pipes fulfil two functions:

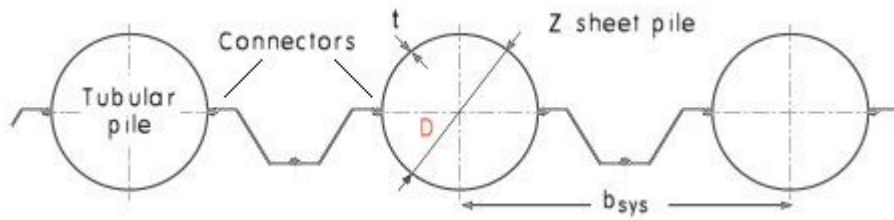
- as retaining elements for horizontal loads from soil and water pressures

- as bearing piles for vertical loads. The intermediate sheet piles transfer horizontal loads to the pipes. Intermediate sheet piles can be shorter than the pipes. The table below gives only a part of the possibilities with combined walls. All kinds of combinations are possible, so tailor-made solutions can be delivered.



Steel-pipe-pile-based retaining wall structures are used in harbors for both wharves and piers. Another relatively common application is permanent underground retaining wall structures. Retaining wall structures based on steel pipe piles can often replace the traditional, labor-intensive excavation-based implementations of retaining wall structures. Combi-walls and pipe pile walls have clearly better resistance against vertical loads than regular sheet-pile walls. Combi-walls and pipe pile walls also have excellent bending stiffness in relation to overall material usage can be built into a continuous combi-wall connected by welded interlocking sections, or complete sheet piles welded to the sides of the pipes. In a combi-wall, the pipe piles serve as the load-bearing structure, and the intermediate sheet piles make the wall continuous. In a pipe pile wall only, the piles are joined by interlocking sections welded to them. The pipe piles of retaining walls are generally installed open-ended, but they can be equipped with pile shoes





Size	Pipe		Intermediary sheet pile: Double GPZ18				Intermediary sheet pile: Triple GPU18			
	Diameter	Thickness	b	Mass	Isys/m	Wsys/m	bsys	Mass	Isys/m	Wsys/m
	D	t								
mm	mm	m	kg/m ²	cm ⁴ /m	cm ³ /m	m	kg/m ²	cm ⁴ /m	cm ³ /m	
GPOZ1	914	10	2.23	175	149180	3264	2.77	170	127768	2796
GPOZ2	914	12	2.23	194	174132	3810	2.77	186	147863	3236
GPOZ3	914	14	2.23	214	198750	4349	2.77	202	167622	3669
GPOZ4	1016	12	2.34	199	222648	4383	2.88	190	188201	3705
GPOZ5	1016	14	2.34	220	255271	5025	2.88	207	214699	4226
GPOZ6	1016	16	2.34	240	287501	5659	2.88	224	240877	4742
GPOZ7	1219	14	2.54	230	395902	6496	3.08	216	333340	5469
GPOZ8	1219	16	2.54	253	447898	7349	3.08	235	376217	6173
GPOZ9	1219	18	2.54	276	499372	8193	3.08	254	418663	6869
GPOZ10	1422	16	2.74	263	652705	9180	3.28	245	551760	7760
GPOZ11	1422	18	2.74	288	729298	10257	3.28	266	615751	8660
GPOZ12	1422	20	2.74	313	805231	11325	3.28	287	679191	9553
GPOZ13	1524	16	2.84	268	772873	10143	3.38	249	655795	8606
GPOZ14	1524	18	2.84	294	864225	11342	3.38	271	732570	9614
GPOZ15	1524	20	2.84	320	954844	12531	3.38	293	808728	10613
GPOZ16	1626	18	2.95	299	1012366	12452	3.49	276	861615	10598
GPOZ17	1626	20	2.95	326	1119126	13765	3.49	299	951837	17089
GPOZ18	1626	22	2.95	352	1225081	15069	3.49	321	1041380	12809
GPOZ19	1829	18	3.15	308	1347086	14730	3.69	285	1155634	12637
GPOZ20	1829	20	3.15	336	1490373	16297	3.69	309	1277946	13974
GPOZ21	1829	22	3.15	364	1632701	17853	3.69	333	1399440	15303
GPOZ22	2032	20	3.35	346	1921455	18912	3.89	319	1660297	16342
GPOZ23	2032	22	3.35	375	2106103	20729	3.89	344	1819326	17907
GPOZ24	2032	24	3.35	404	2289640	22536	3.89	369	1977398	19463
GPOZ25	2540	21	3.86	381	3426296	26979	4.4	353	3010605	23706
GPOZ26	2540	23	3.86	413	3742696	29470	4.4	381	3288174	25891
GPOZ27	2540	25	3.86	445	4057578	31949	4.4	409	3564411	28066
GPOZ28	2997	21	4.32	396	5045198	33668	4.86	369	4488631	2954
GPOZ29	2997	23	4.32	429	5513686	36795	4.86	399	4905033	32733
GPOZ30	2997	25	4.32	463	5980273	39908	4.86	429	5319744	35500

PROJECT LIST

No	Year	Tons	Order Details	Project references
1	2014	7950	70/78/86/98"×16/18/20mm 48"×16/18mm BS EN10219-2:2006 S275JRH	Tuen Mun-Chek Lap Kok Link-southern Connection Viaduct Section Project,Gammon
2	2014	565	24"×8mm API 5L PSL 1 Grade B	Water Irrigation Project, Queiroz Galval International Ltd. ,Venezuela
3	2014	500	48"×22.5mm ASTM A500 Grade B/C(2003)	Al Hallaniyat Island Project,Oman
4	2014	850	40/48"×10mm SY/T5040-2000 Q345B	Hong Kong-Zhuhai-Macao Bridge Project, Guangdong Changda Highway Engineering Co., Ltd.
5	2014	1250	762× 22.2 API 5L PSL2 DNV-OS-F101	Ledong Gas Fields Engineering PMT, CNOOC
6	2013	4217	Standard API 5L X70/X52; ASTM A134-A283 Gr.B/Gr. Diameter;24", 26" Longitudinal welded pipes.	Anglo American, Brazil
7	2013	2700	30"×9.53/17.48mm 36"×9.53mm 40"×10.31/20.62mm 42"×11.13mm S430 steel	NIMR-G Development West Water Flood Project, Oman
8	2013	11000	ASTM A252 Grade 50 steel Diameter:32"-48" Thickness;15-24mm.Length varying from 18 to 34m.	GNL Quintero Project,Chile
9	2013	20045	Diameter 15m.Length up to 65m.Steel grade X60	East Siberia- Pacific Ocean, Russia
10	2013	2500	1800x18,Length minimum 55meters,API 5L PSL1 standard was followed, steel grade was X50,pipeline grade	Van Phong Terminal Project phase II Vietnam
11	2013	850	80No. 20m long 900mm OD x 20mm wall thickness, grade S355JR steel pile casings, including 900mm OD x 50mm wt x 1000mm pipe shoe. with one end beveled Splicing backing rings	Solomon Rail Spur Project Fortescue River Bridges
12	2013	4000	LSAW(with girth weld seam)1500x16 and 1800x16 steel pipes.18-25m	The Marina Bay Sands, Singapore,
13	2013	3700	.1200x18 pipes,length ranging from 18m to 35m	Dock construction of FMG project in Hedland port,Australia
14	2013	7300	1200x12.5 29 to 46.5m long., 600x8 25m to 47m long.	Mozambique Nacala Port, Mozambique
15	2012	18250	The biggest length was 89m,and diameter all 1600m.thickness 18-15mm.In total, 5,600 huge steel piles have been installed	Hangzhou Bay Bridge,Hangzhou,China
16	2012	750	Pipe dimensions 1200x20 spirally welded pipes. 148 pieces.	Continous Barge Unloading – NPLCT at Pulau Laut Kota Baru South of Kalimantan Indonesia
17	2012	2500	1224×12×12000mm 1024×12×12000mm 1232×16×12000mm 1032×16×12000mm 630×9×12000mm	Madinat Al Arab,Dubai Waterfront,UAE 2012
18	2012	2200	1500x18 pipes piles are used S355 steel grade,over 2500 tons. Length from 25 to 35m.	Rotterdam Port,Container Terminal
19	2012	7500	The diameter is unbelievably 21m,Length over 50m.The whole pipe pile is made by 30 smaller cells.	South China Sea Proejct
20	2012	1380	762× 22.2 ASTM A252	Um Essummaq P.O BOX675
21	2012	511	609~812MM API 5L GR.B	30,TAI WAI TSUEN, YUEN LONG, N.T HONGKONG
22	2012	280	1016x22 AS1163 C350	Broken Hill River Railway Bridge, Shepparton, Vic. Australia
23	2012	1800	30"×13.77mm API 5L PSL2 X65MO JCOE/UOE	Shell,Nigerian
24	2012	4640	60~78"×31.75~63.5mm GR.50 S1, S3, S4 Y S5/A36/GR50 API 2H/ASTM	Mexoco Pemex Platform Preject
25	2012	15500	24"×13.6mm/15.9mm/17.5mm API 5L PSL3 GSEP PLR212 REV.08 X65	Offshore& Onshore Pipeline Project-Feed, Total, Southeast Asia
27	2011	1700	18" X52	Pekerjaan Pembangunan TTU Dan PIPANISASI Jawa Project, Indonesia
28	2011	1800	20", 38" X65 API 5L PSL2 UOE/ JCOE	Shuqaiq II Independent Water and Power Project, Saudi Arabia
29	2011	1600	24", 26", 30", 32" API 5L PSL2	SEPC-BOS C2 Jetty & Interconnecting Project, Shell Singapore
30	2011	5000	22"×27mm; 22"×25.4mm; 22"×24mm; 22"×23.8mm; 22"×22mm	SBM Project, Pakistan
31	2011	2800	API 5L PSL2 DNV-OS-F101	Jamnagar Refinery Complex/ Bechtel, India
32	2011	2340	20"×11.1mm-12.7mm API 5L PSL2	Terminal Transit Utama Tuban& PIPANISASI Jawa Timur, Indonesia
33	2011	2870	10"×11.1mm 8"×8.2/9.5/11.1mm 6"×7.11/10.97mm 3LPE Coated API 5L PSL2 X52MS/X52	Ecuador Repsol Projec

Contact us for our projects in your own country

PROJECT EXAMPLES



China South Sea Project Diameter:21m Length:85m Weight:705tons/pipe



Hangzhou Bay Bridge, Hangzhou, China Length 89m diameter 1600mm Thickness 15-18mm



Van Phong Terminal Project phase II Vietnam 800x18, Length minimum 55meters



NIMR-G Development West Water Flood Project, Oman 42"x11.13mm 45m

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