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SHENGLI OIL FIELD

FREET PETROLEUM EQUIPMENT CO., LTD.

胜利油田孚瑞特石油装备有限责任公司



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Brief Introduction

Freet Petroleum Equipment Co., Ltd. ("Freet"), formerly a subsidiary of the Shengli Oilfield (China's 2nd largest oilfield, a part of SINOPEC), with over 40 years of operating history, is one of China's leading onshore oilfield manufacturers specializes in casing and tubing in addition to other oil production machineries, equipments and accessories. Freet was privatized in May 2005 and became a limited company.

We offer a full range of products, including casing and tubing, oil well pumping machines, oil well sucker rods, oilfield specialty vehicles and composite pipes, both standard and customized.

At present, we have 6 branches and 5 subsidiaries with 1,763 employees. Around 181 employees have obtained senior professional qualifications and around 810 employees have junior college education or above. Our production plant covers an area of 2.6 million square meters and includes 4 manufacturing districts:

- Plant No. 1 is located at Qilu Chemistry Industrial Park, Linzi District, Zibo City, which covers an area of about 245,335 square meters. It mainly manufactures tubing, heat insulated tubing especially for heavy oil exploitation and surface pipeline. The plant has an annual production capacity of Rmb700 million.
- Plant No. 2 is located at Shengli Industrial Park, Dongying District, Dongying City, which covers an area of about 666,670 square meters. It mainly manufactures ERW pipes, casing and top drive. The plant has an annual capacity of Rmb2,000 million.
- Plant No. 3 is located at 203 Nanyi Road, Dongying District, Dongying City (where Freet's headquarters is located), which covers an area of about 306,668 square meters. It mainly manufactures pumping units, sucker rods, oilfield specialty vehicles and composite pipes. The plant has an annual production capacity of Rmb800 million.
- Plant No. 4 is located at Dongying Economic Development Zone, Dongying City, which covers an area of about 70,000 square meters. The plant mainly manufactures large-scale hoisting equipment and has an annual capacity of Rmb100 million.

Major branches and subsidiaries

- Tubing Manufacturing Plant
- Sucker Rod Manufacturing Plant
- Pumping Unit Manufacturing Plant
- Oilfield Specialty Vehicle Refitting Plant
- Composite Pipe Manufacture Plant
- Heat Treatment Plant
- Aging Oilfield Recovery Technologies And Services Division
- Freet Petroleum Steel Pipe Co., Ltd. (Casing)
- Faray Petroleum Steel Pipe Co., Ltd. (ERW Pipe)
- Freet Top Drive Co., Ltd (Top Drive Drilling System)

Major Products and Services

- **Tubing** - We produce three types (31 models) of tubing: ordinary tubing, heat-insulated tubing and anti-corrosion tubing with customers including Chinese major oilfields and overseas markets

In North America, Russia and Central Asia. We are one of the three Chinese companies with heat-insulated oil well pipe production capability and dominants the market shares. We have production capacity of 100,000 tons for regular tubing, 300,000 meters for heat-insulated tubing and 4,000 tons for anti-corrosion tubing.

- **Casing** - We have four oil well casing production lines, all adopted advanced threading machines and digital control equipments and hydro testing machines with test pressure as high as 70MPa. Our current casing production capacity is 200,000 tons.
- **ERW pipes** - Through a subsidiary joint venture with Japanese Marubeni, we operate an Electric Resistance Welding Pipe (ERW) production line which adopts world-class high frequency induction welding technology with annual capacity of 120,000 tons. ERW pipes for casing and oilfield surface piping have been widely adopted in North American onshore oil fields.
- **Oil Well Pumping Machine** - We manufactured its oil well pumping machines since 1992 and have emerged as the largest independent pumping machine supplier in China with high production quality, strong R&D capability and an annual production capacity of 1,000-1,500 beam pumping machines (32 models). Our beam pumping machines is largely exported to America and Canada via OEM and partners.
- **Oil Well Sucker Rod** - Freet is one of the sucker rod pioneer producers in China. Freet currently has 5 million meters annual production capacity and is the second largest producer in China.
- **Oilfield specialty Vehicle ("SPV")** - Freet's oilfield SPV operation started in 1992, and is now one of the largest oilfield SPV manufacturers in China. We currently have a comprehensive product line with 14 types of oilfield SPVs, including cementing truck, 40-ton truck mounted work-over unit, tractor hoister, water treatment vehicle, crane lifting vehicle, welding vehicle, oil purifying vehicle, well frame lifting vehicle, oil extraction vehicle, well testing vehicle, 400 trail-welding vehicle, 250 trail-welding vehicle and electric engineering vehicle.
- **Composite Pipe** - We produce PE composite and steel-plastic composite pipes for oilfield surface piping with 6 million meters of pipes and 1.5 million pieces of pipe fittings annual production capacity.
- **Heat treatment** - We established an advanced heat-treatment plant in 2007 which employs state-of-the-art technologies to enhance material quality of casing and tubing with 150,000 tons annual production capacity.

Market Network

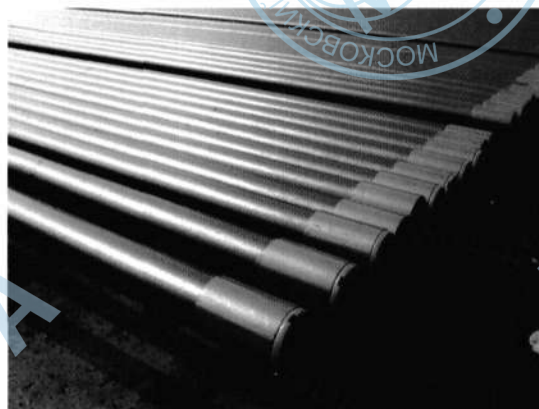
USA, Canada, Argentina, Russia, Germany, UAE, Saudi Arabia, Iraq, Kuwait, Oman, Syria, Venezuela, Peru, Mongolia, Turkmenistan, Kazakhstan, Ukraine, UK, Colombia, etc.

Qualification / Certification

- API 5CT, API 5L, API 5B, API 11B, API 11E, etc.
- German DIN 17100
- Russian Gost
- Chinese CCC
- Chinese Military Standard Certification for Oilfield Special Vehicles

Tubing

We produce over 30 models of tubing. Our tubing production is equipped with a full suite of digital-controlled lathe, hydraulic machine with advanced digital-torsion meter; four-channel intelligent eddy current detector, magnetic particle detector, portable thickness tester, and single thread measuring instrument, etc.. The testing device for tubing hydrostatic pressure is controlled by computer and has advanced monitoring capacity (equipped with auto-coating device, auto-weighting length testing and stencil marking integral device, etc.) to ensure the quality of the final products.



The company possesses two advanced tubing assembly lines, which can be used to shape plain-end tubing (with material grade J55, N80 and L80). This production line is fully automatic and capable to produce high-quality products.

Technical Parameters of Non-upset Tubing

No.	Specs.	OD of Pipe	Wall Thickness	OD of Coupling	Nominal Linear Mass	Steel Grade	Hydrostatic Test Pressure	Internal Yield Pressure Strength	Collapse Resistance	Ultimate Tension of Thread	Recommended Tighten Torque
		mm	mm	mm	Kg/m		Mpa	Mpa	Mpa	kN	N.m
1	1.9	48.26	3.68	55.88	4.09	J55	46.0	50.68	53.43	116.77	420-700
						N80	67.5	73.64	77.77	169.80	585-975
						L80	67.5	73.64	77.77	169.80	570-950
						P110	--	--	--	--	--
2	2-3/8	60.32	4.83	73.02	6.85	J55	48.5	53.09	55.85	220.18	750-1230
						N80	69.0	77.22	81.22	318.93	1320-2180
						L80	69.0	77.22	81.22	318.93	1012.5-1687.5
						P110	69.0	101.4	106.6	420.00	1305-2175
3	2-7/8	73.02	5.51	88.9	9.52	J55	46.0	50.06	52.95	322.94	1080-1770
						N80	66.5	72.88	76.95	443.48	1690-2790
						L80	66.5	72.88	76.95	443.48	1455-2425
						P110	69.0	95.6	96.6	616.66	1882.5-3137.5
4	3-1/2	88.9	6.45	107.95	13.69	J55	44.0	48.19	51.02	486.63	1510-2500
						N80	64.0	70.05	72.60	633.87	2320-3860
						L80	64.0	70.05	72.60	633.87	2062.5-3437.5
						P110	69.0	92.0	90.0	929.438	2662.5-4437.5
5	4	101.6	5.74	120.65	14.14	J55	34.5	37.5	35.2	440.37	1690-2100
						N80	50.0	54.5	45.4	640.54	2360-2950
						L80	50.0	54.5	45.4	640.54	1710-2850
						P110	69.0	--	--	--	--
6	4-1/2	114.3	6.88	132.08	18.75	J55	36.5	39.99	39.4	638.31	1780-2950
						N80	53.0	58.12	51.71	928.34	2490-4130
						L80	53.0	58.12	51.71	928.34	2437.5-4062.5
						P110	69.0	--	--	--	--

Technical Parameters of External Upset Tubing

No.	Specs.	OD of Pipe	Wall Thickness	OD of Coupling	Nominal Linear Mass	Steel Grade	Hydrostatic Test Pressure	Internal Yield Pressure Strength	Collapse Resistance	Ultimate Tension of Thread	Recommended Tighten Torque
		mm	mm	mm	Kg/m		Mpa	Mpa	Mpa	kN	N.m
1	1.9	48.26	3.68	63.50	4.32	J55	46.0	50.68	53.43	195.59	2280-3800
						N80	67.5	73.64	77.77	284.51	2310-3850
						L80	67.5	73.64	77.77	284.51	1207.5-2012.5
						P110	69.0	- -	- -	- -	- -
2	2-3/8	60.32	4.83	77.8	6.99	J55	48.5	53.09	55.85	319.82	1050-1730
						N80	69.0	77.22	81.22	463.94	1830-3050
						L80	69.0	77.22	81.22	463.94	1792.5-2987.5
						P110	69.0	101.4	106.6	609.09	2310-3850
3	2-7/8	73.02	5.51	93.17	9.67	J55	46.0	50.06	52.95	469.73	1500-2490
						N80	66.5	72.88	76.95	644.99	2350-3900
						L80	66.5	72.88	76.95	644.99	2287.5-3812.5
						P110	69.0	95.6	96.6	846.68	2955-4925
4	3-1/2	88.9	6.45	114.3	13.84	J55	44.0	48.19	51.02	707.71	2100-3510
						N80	64.0	70.05	72.60	921.67	3260-5420
						L80	64.0	70.05	72.60	921.67	3180-5300
						P110	69.0	92.0	90.0	1210.18	4117.5-6862.5
5	4	101.6	6.65	127.00	16.37	J55	39.5	43.4	45.4	752.805	2603-4337
						N80	58.0	63.2	60.7	1094.948	3660-6100
						L80	58.0	63.2	60.7	1094.948	3585-5975
						P110	69.0	- -	- -	- -	- -
6	4-1/2	114.3	6.88	141.30	18.97	J55	36.5	40.0	39.4	880.942	2903-4837
						N80	53.0	58.1	51.7	1281.37	4088-6812
						L80	53.0	58.1	51.7	1281.37	4005-6675
						P110	69.0	- -	- -	- -	- -

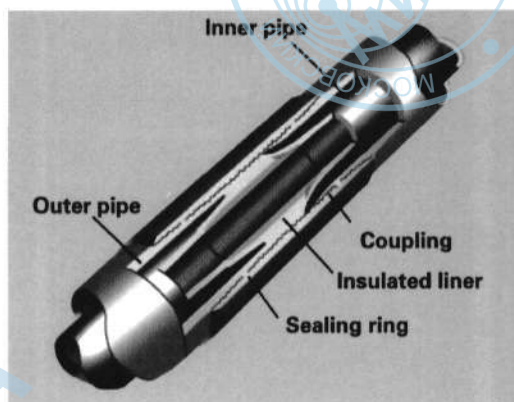
Technical Parameters of Upset Tubing

No.	Specs.	OD of Pipe	Wall Thickness	OD of Coupling	Nominal Linear Mass	Steel Grade	Hydrostatic Test Pressure	Internal Yield Pressure Strength	Collapse Resistance
		mm	mm	mm	Kg/m		Mpa	Mpa	Mpa
1	1.9	48.26	3.68	3.68	53.19	J55	46.0	50.68	53.43
						N80	67.5	73.64	77.77
						L80	67.5	73.64	77.77
						P110	- -	- -	- -
2	2-3/8	60.32	4.83	4.83	65.89	J55	48.5	53.09	55.85
						N80	69.0	77.22	81.22
						L80	69.0	77.22	81.22
						P110	69.0	101.4	106.6
3	2-7/8	73.02	5.51	5.51	78.59	J55	46.0	50.06	52.95
						N80	66.5	72.88	76.95
						L80	66.5	72.88	76.95
						P110	69.0	95.6	96.6
4	3-1/2	88.9	6.45	6.45	95.25	J55	44.0	48.19	51.02
						N80	64.0	70.05	72.60
						L80	64.0	70.05	72.60
						P110	69.0	92.0	90.0
5	4	101.6	6.65	6.65	107.95	J55	34.5	43.4	45.4
						N80	50.0	63.2	60.7
						L80	50.0	63.2	60.7
						P110	69.0	- -	- -
6	4-1/2	114.3	6.88	6.88	120.65	J55	36.5	40.0	39.4
						N80	53.0	58.1	51.7
						L80	53.0	58.1	51.7
						P110	69.0	- -	- -

Vacuum Insulated Tubing

Vacuum insulated tubings (VIT) are tubings with high heat insulation performance. With 20 years of production experience, Freet is one of the leading companies in producing VIT.

VIT is composed of host string, thermo case, coupling, sealing ring and liner pipe. The insulated tubing adopts double-walled enclosed welded structure. The inner tube is treated with pre-stressing process during welding. There are multilayer insulation structures in the annulus space as well as getter in the thermo case that can reduce heat transfer, energy loss by convection and radiation, and avert hydrogen explosion and prolong the service life.



The vacuum insulated tubing operates under the condition that the temperature of heat carrier is less than 350°C. The insulated tubing mainly applies to steam thermal recovery well with "huff and puff" and "steam drive" as well as heavy oil well with "integration of production and injection". Using VIT correctly can not only reduce the heat loss of steam

injection and guarantee steam quality, but also decrease the speed of casing deformation and protect the cementing casing.

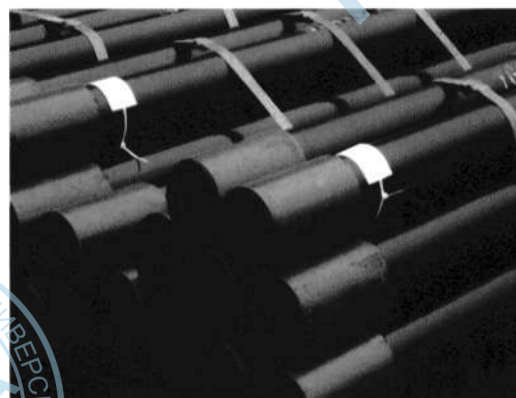
The thread of vacuum insulated tubing is API buttress thread. With PTFE sealing ring in the coupling and insulated liner in the annulus space between the inner and outer tubes, it can ensure positive confinement among pipe strings, connection reliability, ensure the laminar flow state of steam injection and reduce the resistance of steam transport and heat loss in the coupling process.

VIT is manufactured in accordance with the standard SY/T5324-94 of Vacuum Insulated Tubing. Insulated tubing with different performance grades can meet the needs of thermal recovery for heavy oil, super heavy oil with different depth and horizontal wells.

VIT with high performance, which the thermal conductivity is less than 0.015w/m°C (equal to vacuum insulated tubing of grade D and E in SY/T5324-94), is the fourth generation VIT for heavy oil thermal recovery in the domestic market.

VIT of grade D and E can be applied in heavy oil well, super heavy oil well and production well with high water. Using of VIT can save fuel and shorten the steaming circle substantially.

Supercritical insulation tubes (SIT) is the fifth generation product of vacuum insulated tubing produced by Freet. The product can be applied under the environment that the temperature of steam injection is less than 390°C and the injection pressure is less than 26MPa. It can meet with the requirements of the thermal recovery for both heavy oil well and super heavy oil well.



Technical Parameters of Subcritical Vacuum Insulated Tubing

No.	Specs (OD of outer pipe & ID of inner pipe)		Basic Parameters				Key Performance Parameters							Service Parameters			
			Grade	Outer Pipe OD & Wall Thickness (Inner Pipe OD & Wall Thickness)	OD of coupling	Connecting threads	Thermal Conductivity (inner wall of inner pipe 350℃)	Tensile Strength at Normal Temp	Internal Pressure Strength		Collapse Resistance		Flatness	Well Depth	Temperature		Cementing Casing
															℃		
	mm	in	mm	mm	W/m.℃	kN	MPa		MPa		%	m	Regular Condition	Over heating (3~4h)	in		
							Normal Temp	Steam Injection	Normal Temp	Steam Injection							
1	73*40	2-7/8*1.61	N80	73.02*5.51 (48.26*3.68)	88.9	2-7/8USS	0.002-0.08	385	32	20	30	28	≤0.2	≤1500	350	380	4-1/2
2	88*40	3-1/2*1.61	N80	88.9*6.45 (48.26*3.68)	108	3-1/2USS	0.002-0.08	402	32	20	30	28	≤0.2	≤1500	350	380	5
3	88*50	3-1/2*1.995	N80	88.9*6.45 (60.32*4.83)	108	3-1/2USS	0.002-0.08	432	32	20	30	28	≤0.2	≤1500	350	380	5
4	114*62	4-1/2*2.441	N80	114.3*6.88 (73.02*5.51)	132	4-1/2BC	0.002-0.08	506	32	20	26	24	≤0.2	≤1500	350	380	7
5	114*76	4-1/2*2.992	N80	114.3*6.88 (88.9*6.45)	132	4-1/2BC	0.002-0.08	537	32	20	26	24	≤0.2	≤1500	350	380	7
6	127*76	5*2.992	N80	127.0*9.19 (88.9*6.45)	141.3	5BC	0.002-0.08	615	32	20	23	21	≤0.2	≤1500	350	380	9-5/8

Note:BC--API Buttress;USS--Equals to BC

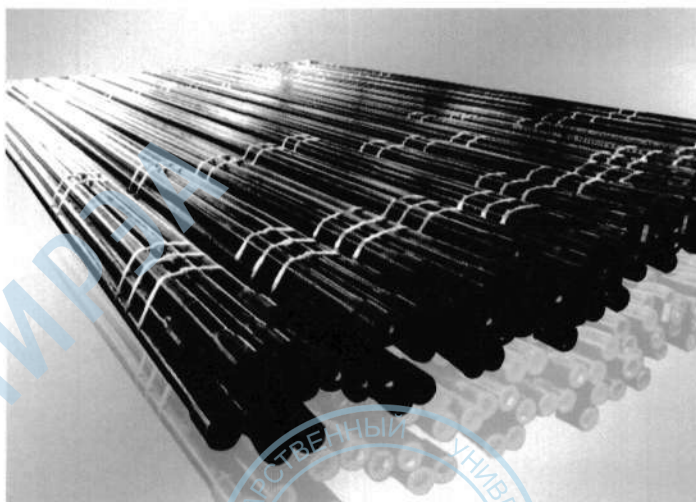
Note: BC--API Buttress; USS--Equals to BC

Technical Parameters of Subcritical Vacuum Insulated Tubing

No.	Specs (OD of outer pipe & ID of inner pipe)	Basic Parameters				Key Performance Parameters						Service Parameters				
		Grade	Outer Pipe OD & Wall Thickness (Inner Pipe OD & Wall Thickness)	OD of coupling	Connecting threads	Thermal Conductivity (inner wall of inner pipe 350℃)	Tensile Strength at Normal Temp	Internal Pressure Strength		Collapse Resistance		Flatness	Well Depth	Temperature		Cementing Casing
														℃		
								mm*mm in*in	mm*mm	mm	W/m.℃	kN		MPa		
						Normal Temp	Steam Injection	Normal Temp	Steam Injection							
1	88 × 50 (3-1/2 * 1.995)	P110	73.02 * 5.51 (48.26 * 3.68)	108	3-1/2USS	≤0.04	432	50	40	50	37	≤0.2	≤1400	≤390	<380	5
2	114 × 62 (4-1/2 * 2.441)	P110	88.9 * 6.45 (60.32 * 4.83)	127	4-1/2BC	≤0.04	600	32	20	30	28	≤0.2	≤1400	≤390	<380	7
Note:BC--API Buttress																

Anti-corrosive Tubing

The anti-corrosive tubing produced by Freet has more than ten models. The anti-corrosive tubings are tubings which the inner wall has been treated with special materials. These products are mainly used in water injection wells, acid-fracturing wells, H₂S gas wells, heavy scaled wells, paraffin troubled wells, etc. The anti-corrosive tubing has high abrasion resistance, fatigue endurance, excellent anticorrosive, has no pollution with long service life.



Product Standard:

*SY/T 0442-97: Technical standard of internal coating of fusion bonded epoxy for steel pipeline.

*API SPEC 5CT: Specification for casing and tubing.

*API SPEC 5B Specification for threading, gauging and thread inspection of casing, tubing and line pipe threads.

The finished anti-corrosive tubing is composed of pipe, coupling, internally coated with epoxy powder and thread protectors. There is TBG tubing round thread in both ends of pipe. And coupling is tightened on the pipe according to the recommended torque.

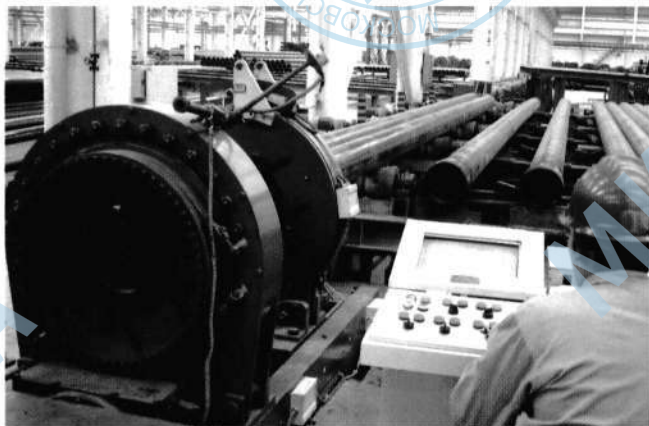
Technical Parameters of Anti-corrosive Tubing Internally Coated Epoxy Power

No.	Specs	Tubing Parameters			Coating Parameters				
		OD of Pipe	Wall Thickness	Type of End-finish	Shock Strength	Abrasion Resistance	Adhesion	Pin-hole (piece/m ²)	Coating Thickness
		mm	mm						
1	1.9	48.26	3.68	Non-upset or External upset	≥ 11J	≤ 20mg	1 ~ 3 Grade	≤ 1	250 ~ 300 μm Or according to customers' demand
2	2-3/8	60.32	4.83						
3	2-7/8	73.02	5.51						
4	3-1/2	88.90	6.45	Non-upset					
5	4	101.6	5.74						
			6.65	External upset					
6	4-1/2	114.3	6.88	Non-upset or External upset					

Seamless Casing

Freet has four production lines for casing specially used for petroleum industry. The company has adopted the most advanced threading machines and control equipment.

In order to ensure quality of products, the company has introduced digitalized inspection instruments, such as NDT, hydro test, etc.





ISO/API Casing Products Catalogue

Label		Outside Diameter	Normal Linear Masses T&C	Wall Thickness	Type of End-finish			
		D mm	kg/m	t mm	J55 K55	L80	N80 -1 N80 - Q	P110
4-1/2	9.50	114.30	14.14	5.21	S	-	-	-
4-1/2	10.50	114.30	15.63	5.69	SB	-	-	-
4-1/2	11.60	114.30	17.26	6.35	SLB	LB	LB	LB
4-1/2	13.50	114.30	20.09	7.37	-	LB	LB	LB
4-1/2	15.10	114.30	22.47	8.56	-	-	-	LB
5	11.50	127.00	17.11	5.59	S	-	-	-
5	13.00	127.00	19.35	6.43	SLB	-	-	-
5	15.00	127.00	22.32	7.52	SLB	LB	LB	LB
5	18.00	127.00	26.79	9.19	-	LB	LB	LB
5	21.40	127.00	31.85	11.10	-	LB	LB	LB
5	23.20	127.00	34.53	12.14	-	LB	LB	LB
5	24.10	127.00	35.86	12.70	-	LB	LB	LB
5-1/2	14.00	139.70	20.83	6.20	S	-	-	-
5-1/2	15.50	139.70	23.07	6.98	SLB	-	-	-
5-1/2	17.00	139.70	25.30	7.72	SLB	LB	LB	LB
5-1/2	20.00	139.70	29.76	9.17	-	LB	LB	LB
5-1/2	23.00	139.70	34.23	10.54	-	LB	LB	LB
6-5/8	20.00	168.28	29.76	7.32	SLB	-	-	-
6-5/8	24.00	168.28	35.72	8.94	SLB	LB	LB	LB
6-5/8	28.00	168.28	41.67	10.59	-	LB	LB	LB
6-5/8	32.00	168.28	47.62	12.06	-	LB	LB	LB
7	17.00	177.80	25.30	5.87	-	-	-	-
7	20.00	177.80	29.76	6.91	S	-	-	-
7	23.00	177.80	34.23	8.05	SLB	LB	LB	-
7	26.00	177.80	38.69	9.19	SLB	LB	LB	LB
7	29.00	177.80	43.16	10.36	-	LB	LB	LB
7	32.00	177.80	47.62	11.51	-	LB	LB	LB
7	35.00	177.80	52.09	12.65	-	LB	LB	LB
7-5/8	24.00	193.68	35.72	7.62	-	-	-	-
7-5/8	26.40	193.68	39.29	8.33	SLB	LB	LB	LB
7-5/8	29.70	193.68	44.20	9.52	-	LB	LB	LB
7-5/8	33.70	193.68	50.15	10.92	-	LB	LB	LB
7-5/8	39.00	193.68	58.04	12.70	-	LB	LB	LB
7-5/8	42.80	193.68	63.69	14.27	-	LB	LB	LB
7-5/8	45.30	193.68	67.41	15.11	-	LB	LB	LB
7-5/8	47.10	193.68	70.09	15.88	-	LB	LB	LB
8-5/8	24.00	219.08	35.72	6.71	S	-	-	-
8-5/8	28.00	219.08	41.67	7.72	-	-	-	-
8-5/8	32.00	219.08	47.62	8.94	SLB	-	-	-

(Continued) ISO/API Casing Products Catalogue

Label		Outside Diameter	Nominal Linear Masses T&C	Wall Thickness	Type of End-finish			
		D mm	kg/m	t mm	J55 K55	L80	N80 - 1 N80 - Q	P110
8-5/8	36.00	219.08	53.57	10.16	SLB	LB	LB	LB
8-5/8	40.00	219.08	59.53	11.43	-	LB	LB	LB
8-5/8	44.00	219.08	65.48	12.70	-	LB	LB	LB
8-5/8	49.00	219.08	72.92	14.15	-	LB	LB	LB
9-5/8	32.30	244.48	48.07	7.92	-	-	-	-
9-5/8	36.00	244.48	53.57	8.94	SLB	-	-	-
9-5/8	40.00	244.48	59.53	10.03	SLB	LB	LB	-
9-5/8	43.50	244.48	64.73	11.05	-	LB	LB	LB
9-5/8	47.00	244.48	69.94	11.99	-	LB	LB	LB
9-5/8	53.50	244.48	79.62	13.84	-	LB	LB	LB
9-5/8	58.40	244.48	86.91	15.11	-	LB	LB	LB
10-3/4	32.75	273.05	48.74	7.09	-	-	-	-
10-3/4	40.50	273.05	60.27	8.89	SB	-	-	-
10-3/4	45.50	273.05	67.71	10.16	SB	-	-	-
10-3/4	51.00	273.05	75.90	11.43	SB	SB	SB	SB
10-3/4	55.50	273.05	82.59	12.57	-	SB	SB	SB
10-3/4	60.70	273.05	90.33	13.84	-	-	-	SB
10-3/4	65.70	273.05	97.77	15.11	-	-	-	SB
11-3/4	42.00	298.45	62.50	8.46	-	-	-	-
11-3/4	47.00	298.45	69.94	9.53	SB	-	-	-
11-3/4	54.00	298.45	80.36	11.05	SB	-	-	-
11-3/4	60.00	298.45	89.29	12.42	SB	SB	SB	SB
13-3/8	48.00	339.72	71.43	8.38	-	-	-	-
13-3/8	54.50	339.72	81.10	9.65	SB	-	-	-
13-3/8	61.00	339.72	90.78	10.92	SB	-	-	-
13-3/8	68.00	339.72	101.19	12.19	SB	SB	SB	SB
13-3/8	72.00	339.72	107.15	13.06	-	SB	SB	SB
16	65.00	406.40	96.73	9.53	-	-	-	-
16	75.00	406.40	111.61	11.13	SB	SB	-	-
16	84.00	406.40	125.01	12.57	SB	SB	-	-
18-5/8	87.50	473.08	130.21	11.05	SB	SB	-	-
20	94.00	508.00	139.89	11.13	SLB	-	-	-
20	106.50	508.00	158.49	12.70	SLB	-	-	-
20	133.00	508.00	197.93	16.13	SLB	-	-	-

Note: S--Short round thread, L--Long round thread, B--Buttress thread.

a. Labels are for reference and assistance in purchase order.

b. Nominal linear masses, threaded and coupled (col.2) are shown for reference only.

c. The densities of marten site chromium steels (L80 type 9Cr and 13Cr) are different from carbon steels. Therefore, the masses values shown above are not accurate to marten site chromium steels. A mass correction factor of 0.989 may be used.

d. C90, T95 and Q125 casing shall be furnished with sizes, masses and wall thickness shown above or on the purchase order.

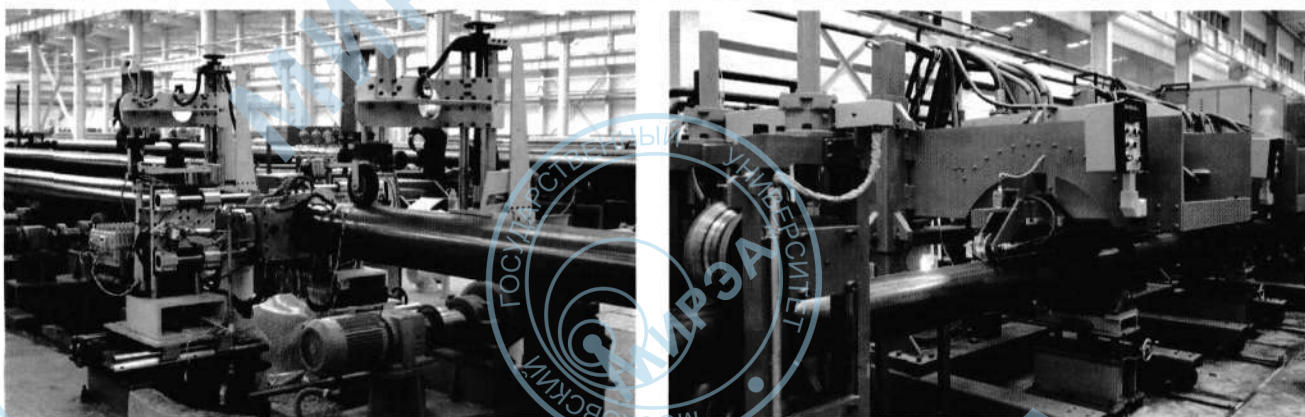


ERW Pipe

ERW pipes have the following qualities:

- *High dimensional precision
- *Good flexibility
- *High performance of impact resistance and explosion resistance
- *The ERW casing uses hot-rolled coiled plate, the tube blank is highly compact and has a high degree of grain size relative to seamless steel

Freet's anti-corrosion coating line is capable of applying 3-layer PE coating and single-layer FBE coating onto the steel pipes with specification from 4 1/2" to 40".



ERW Casing

NO.	OD (in, mm)	Wall Thickness (mm)	Steel Grade
1	4-1/2, 114.3	32, 35, 38, 40, 42, 45, 48, 50, 54, 56	Q195, Q215, Q235
2	5-1/2, 139.7	35, 38, 40, 42, 45, 48, 50, 54, 56, 60	Q195, Q215, Q235
3	6-5/8, 168.3	40, 42, 45, 48, 50, 54, 56, 60, 65, 70, 80	Q195, Q215, Q235
4	7, 177.8	40, 42, 45, 48, 50, 54, 56, 60, 65, 70, 80	Q195, Q215, Q235
5	8-5/8, 219.1	45, 48, 50, 54, 56, 60, 65, 70, 80, 90	Q195, Q215, Q235
6	9-5/8, 244.5	45, 48, 50, 54, 56, 60, 65, 70, 80, 90	Q195, Q215, Q235
7	10-3/4, 273.1	50, 54, 56, 60, 65, 70, 80, 90, 100	Q195, Q215, Q235
8	12-3/4, 323.9	56, 60, 65, 70, 80, 90, 100, 110, 120	Q195, Q215, Q235
9	14, 355.6	60, 65, 70, 80, 90, 100, 110, 120	Q195, Q215, Q235

Structural Pipe

NO.	OD (in,mm)	Wall Thickness (mm)	Steel Grade	Material
1	4-1/2, 114.3	6.35	J55, K55, N80, P110	ERW Pipe
		7.37	J55, K55, N80, P110	
2	5-1/2, 139.7	7.72	J55, K55, N80, P110	
		9.17	J55, K55, N80, P110	
3	7, 177.8	10.54	J55, K55, N80, P110	
		8.05	J55, K55, N80, P110	
		9.19	J55, K55, N80, P110	
		10.36	J55, K55, N80, P110	
4	9-5/8, 244.5	11.05	J55, K55, N80, P110	
		11.99	J55, K55, N80, P110	
5	10-3/4, 273.05	8.89	J55, K55, N80, P110	
		11.43	J55, K55, N80	
6	13-3/8, 339.7	9.65	J55, K55, N80	
		12.19	J55, K55, N80	

Line Pipe

NO.	OD (in,mm)	Wall Thickness (mm)	Steel Grade
1	4-1/2 114.3	3.2, 3.6, 4.0, 4.4, 4.8, 5.5, 5.6, 6.0, 6.4, 7.1, 7.9, 8.7, 9.5, 10.3, 11.1	A, B, X42, X46, X52, X56, X60, X65, X70, X80
2	5-9/16 114.3	3.2, 3.6, 4.0, 4.4, 4.8, 5.5, 5.6, 6.0, 6.4, 7.1, 7.9, 8.7, 9.5, 10.3, 11.1, 12.7, 13.5	A, B, X42, X46, X52, X56, X60, X65, X70, X80
3	6-5/8 168.3	3.2, 3.6, 4.0, 4.4, 4.8, 5.5, 5.6, 6.0, 6.4, 7.1, 7.9, 8.7, 9.5, 10.3, 11.1, 12.7, 13.5, 14.3, 3.2, 3.6, 4.0, 4.4, 4.8	A, B, X42, X46, X52, X56, X60, X65, X70, X80
4	8-5/8 219.1	5.2, 5.6, 6.0, 6.4, 7.1, 7.9, 8.7, 9.5, 10.3, 11.1, 12.7, 13.5, 14.3	A, B, X42, X46, X52, X56, X60, X65, X70, X80
5	10-3/4 273.1	4.0, 4.4, 4.8, 5.5, 5.6, 6.0, 6.4, 7.1, 7.9, 8.7, 9.5, 10.3, 11.1, 12.7, 13.5, 14.3	A, B, X42, X46, X52, X56, X60, X65, X70, X80
6	14 355.6	4.8, 5.5, 5.6, 6.0, 6.4, 7.1, 7.9, 8.7, 9.5, 10.3, 11.1, 12.7, 13.5, 14.3	A, B, X42, X46, X52, X56, X60, X65, X70, X80



Pumping Unit

Freet has 120 sets of key manufacturing machines for pumping unit. We adopt the concept of modularized designing and can quickly provide design and manufacture most types of pumping units in accordance with customer's specific requirements.

C912D-365-192



C320D-213-120





API BEAM PUMPING UNIT

No.	Model	Polish Rod Capacity (lbf)	Peak Torque Rating (lbf.in)	Stroke Length (in)
1	40-89-36	40000	8,900	36
2	40-76-42	40000	7,600	42
3	40-89-42	40000	8,900	42
4	40-76-48	40000	7,600	48
5	57-76-42	57000	7,600	42
6	57-89-42	57000	8,900	42
7	57-95-48	57000	9,500	48
8	57-109-48	57000	10,900	48
9	57-76-54	57000	7,600	54
10	80-109-48	80000	10,900	48
11	80-133-48	80000	13,300	48
12	80-119-54	80000	11,900	54
13	80-133-54	80000	13,300	54
14	80-119-64	80000	11,900	64
15	114-133-54	114000	13,300	54
16	114-143-64	114000	14,300	64
17	114-173-64	114000	17,300	64
18	114-143-74	114000	14,300	74
19	114-119-86	114000	11,900	86
20	160-173-64	160000	17,300	64
21	160-143-74	160000	14,300	74
22	160-173-74	160000	17,300	74
23	160-200-74	160000	20,000	74
24	160-173-86	160000	17,300	86
25	228-173-74	228000	17,300	74
26	228-200-74	228000	20,000	74
27	228-213-86	228000	21,300	86
28	228-246-86	228000	24,600	86

API BEAM PUMPING UNIT

No.	Model	Polish Rod Capacity (lbf)	Peak Torque Rating (lbf.in)	Stroke Length (in)
29	228-173-100	228000	17,300	100
30	228-213-120	228000	21,300	120
31	320-213-86	320000	21,300	86
32	320-256-100	320000	25,600	100
33	320-305-100	320000	30,500	100
34	320-213-120	320000	21,300	120
35	320-256-120	320000	25,600	120
36	320-256-144	320000	25,600	144
37	456-256-120	456000	25,600	120
38	456-305-120	456000	30,500	120
39	456-365-120	456000	36,500	120
40	456-256-144	456000	25,600	144
41	456-305-144	456000	30,500	144
42	456-305-168	456000	30,500	168
43	640-305-120	640000	30,500	120
44	640-256-144	640000	25,600	144
45	640-305-144	640000	30,500	144
46	640-365-144	640000	36,500	144
47	640-305-168	640000	30,500	168
48	640-305-192	640000	30,500	192
49	912-427-144	912000	42,700	144
50	912-305-168	912000	30,500	168
51	912-365-168	912000	36,500	168
52	912-305-192	912000	30,500	192
53	912-427-192	912000	42,700	192
54	912-470-240	912000	47,000	240
55	912-427-216	912000	42,700	216
56	-	-	-	-



Sucker Rod

Polished rods, sinker bars, pony rods, centralizers and couplings of all specifications are available.

Conventional Sucker Rod, D-Grade, Anti-Corrosion

Specs (in.)	Length (m)	Mechanical Performance						
		Tensile Strength (Mpa)	Yield Point (Mpa)	Extension Rate 200mm %	Section Contraction Rate %	Airy Impact Flexibility Value AKV J	Fatigue Strength	
							Mpa	Circulation Cycles
5/8	7.62, 8.0, 8.5,	793-965	≥ 620	≥ 10	≥ 50	≥ 60.8	400	≥ 1*10 ⁶
3/4	9.14 and vari-							
7/8	ous pony rod							
1	from 1m to 3m							





Ultra Hi-Strength Sucker Rod, HY Type

The HY Type Ultra Hi-Strength Sucker Rod is made from low-carbon alloy steel. The HY Type Ultra Hi-Strength Sucker Rod has a high tensile strength, its bearing capacity is better than D-grade rod. The rod has hardened surface, so it is better than D-grade rod in terms of corrosion resistance and abrasion resistance.

Specs. (in)	Length (m)	Dynamics Property					
		Hardness		Surface Residual Pressure Stress MPa	Tensile Strength MPa	Fatigue Strength	
		Surface Hardness HRC	Core Hardness HB			$\sigma_{0.1}$	Cycles
5/8	7.62	≥ 42	≥ 224	≤ -220	$\geq 980 \sim 1176$	540	$\geq 1 \cdot 10^6$
3/4	8.0						
7/8	8.5						
1	9.14						

Hollow Sucker Rod

Hollow sucker rods can be used to added diluents, corrosion inhibitors, hot oil to the wells to reduce the viscosity of crude oil and control paraffin buildup in the well, which will help improve the physical property of the well bore and the efficiency of the pump.

The hollow rod is also suitable for sandy oil wells. Due to the fact that the torsion strength of the hollow rod is bigger than that of ordinary rod, it can be used to drive downhole screw pumping unit.



Specs. in	Length m	Mechanical Performance			
		Tensile Strength	Yield Point	Extension Rate	Section Contraction rate
		σ_b MPa	σ_s MPa	δ_s %	ψ %
KG34	≥ 8	793-965	≥ 620	≥ 10	≥ 48
KG36					



Oilfield Specialty Vehicles

More than 70 types of oilfield specialty vehicles are refitted in Freet, such as workover rig, cementing truck, nitrogen injection vehicle, etc.

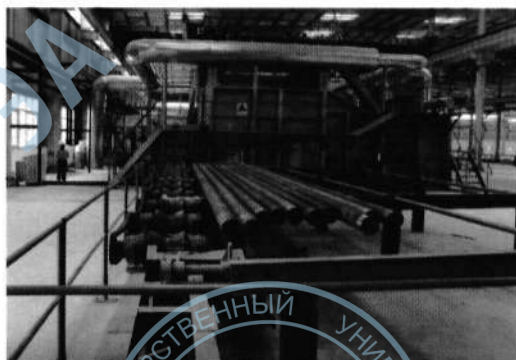
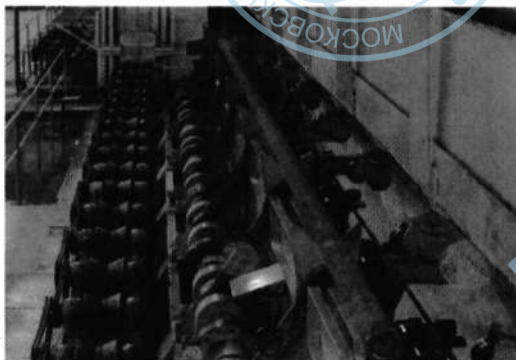
Workover Rig



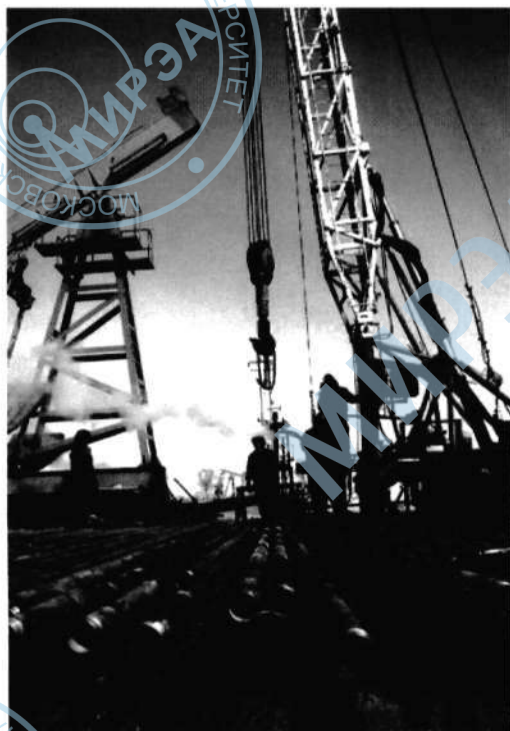
Type			XJ 201,600	XJ 30	XJ 40	XJ 60	XJ 80
Nominal Workover Depth (m)	Minor Repair	Depth 2-7/8" EU Tubing	--	2,600	3,200	4,000	5,500
	Big Repair Depth	2-7/8" Drill pipe	--	--	2,000	3,200	4,500
		3-1/2" Drill pipe	--	--	---	2,500	3,500
Max. Hook Load (kN)			360	585	675	900	1,125
Rated Hook Load (kN)			200	300	400	600	800
Drawworks Horsepower (kW)			80 - 150	120 - 180	160 - 257	257 - 330	280 - 400
Derrick Height (m)			16, 18	16, 18	17, 21	29, 31	31, 33, 35
Effective Number of Wire Rope			4	4	6	6	8
Dia. Of Lifting Wire Rope (mm)			22	22	22	26	26
Max. Hook Speed (m/s)			1 - 1.5	1 - 1.5	1 - 1.5	1 - 1.5	1 - 1.5

Tubular Heat Treatment

The most advanced heat treatment and straightening equipments in China are adopted. The heat treatment equipments are able to do the normalization and thermal refining treatment to all kinds of pipes exclusively used in oilfield. The straightening equipments are able to do the straightening treatment to the body of the pipe after the heat treatment. The automatization control system ensures steady and first class quality of the products. The annual heat treatment ability is 100,000 tons.



Coal Seam Gas Exploitation And Equipment



We have two sets of SS-185K type truck-mounted self-propelled drilling rigs imported from America, one set of SG5490TXJC truck-mounted rig designed by Freet, and one set of downhole precisely connecting equipment imported from America. We can drill such coal-bed gas wells as multi-branched horizontal well, directional well, cluster well and vertical well.

Shengli Oilfield Freet coal-bed gas equipment Co Ltd is especially engaged in petroleum and coal-bed gas engineering and technical services, including well workover for oil and gas or water wells, commissioning and maintenance for new wells, technological designing, and production increasing methods for wells.

With 12 sets of production facilities, over 40 employees, 6 specialized technical personnel and 2 specialists, we have a workover capability of 200 wells per year and lead an advanced level of engineering in domestic.

Top Drive Drilling



The top drive featured in compact texture, innovation thought, high integrated assembly, and high reliability. We have 4 patents as follow.

Hydraulic system is installed on the main body of the top drive, so less amount of heat will be generated. The system pressure could be down to 12MPa, and reliability of the system is promoted.

Electric system is adopted with the technology of warm-standby and cold-standby, so it can make the system more reliable and more secure.



250T Major parameter

Rated drilling depth	4000 m	Hydraulic system pressure	12MPa
Max.hook load	2250 kN(250t)	Moto power	315 kW
Drilling torque	30 kN.m	Input voltage of SCR	600V AC
Max. breakout torque	50kN.m	Frequency range	0-121 Hz AC
Max angle of Link-tilt	forward30° backward5°	Moto rotary speed range	0-2400 rpm
Clamp range with drilling pipe	86mm-197mm	Ambient temperature	-40℃-60℃

350T Major parameter

Rated drilling depth	5000 m	Max. breakout torque	55kN.m
Max.hook load	3150 kN(350t)	Clamp range with drilling pipe	3 1/2" - 5 "
Max.torque of power swivel	27 kN.m	Hydraulic system pressure	12MPa
Max.breakout torque of power swivel	47 kN.m	Input voltage of SCR	600V AC
Moto power	375 kW	Frequency range	0-121 Hz AC
Max angle of Link-tilt	forward30° , backward55°	Moto rotary speed range	0-2400 rpm

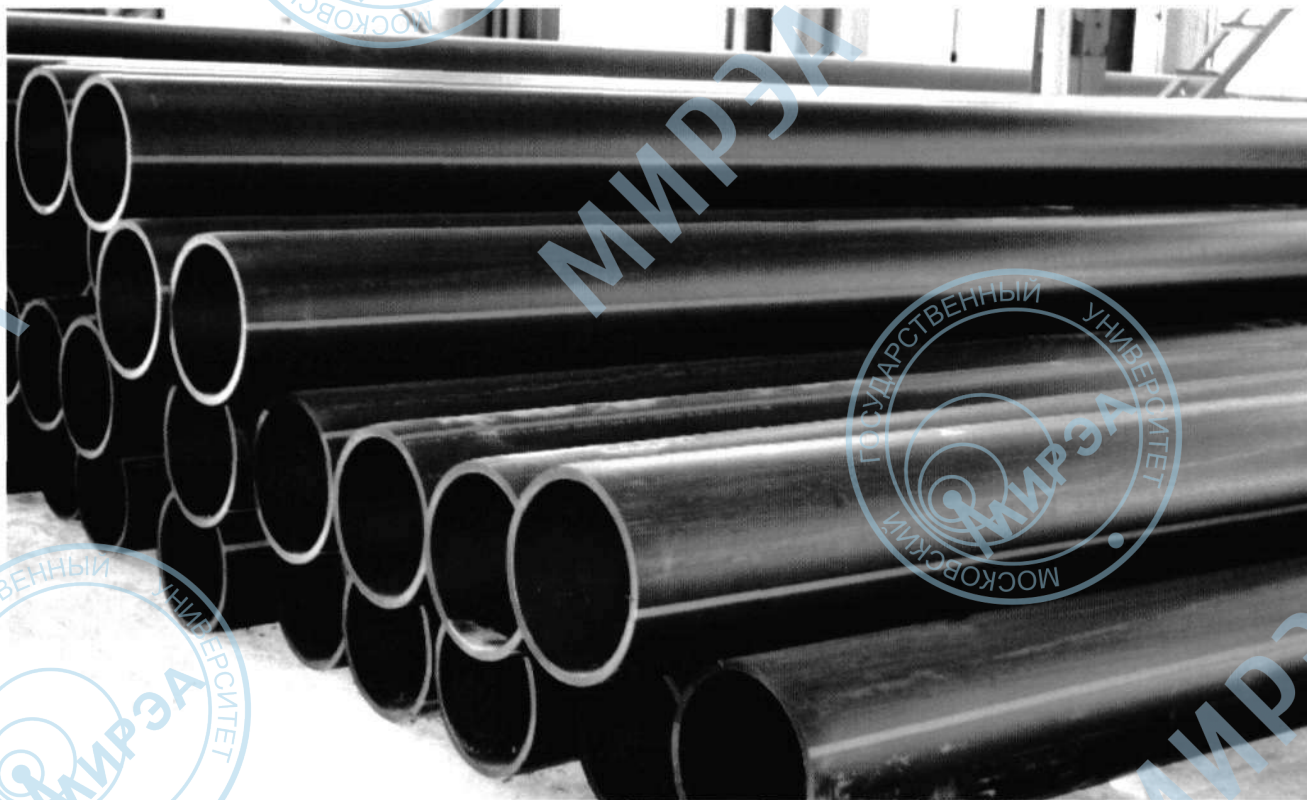
500T Major parameter

Rated drilling depth	7000 m	Hydraulic system pressure	12MPa
Max.hook load	4500 kN(450t)	Input voltage of SCR	600V AC
Drilling torque	55 kN.m	Frequency range	0-121 Hz AC
Moto power	350*2kW	Moto rotary speed range	0-2400 rpm
Max angle of Link-tilt	forward 30° backward 5°	Ambient temperature	-40℃-60℃
Clamp range with drilling pipe	86mm-219mm	-	-

Composite Pipe

FREET has 8 production lines for steel skeleton reinforced compound plastic pipes, 7 production lines for PE pipe, over 20 sets of plastic jetting-molding machines for pipe fittings.

The composite pipes are widely used for petroleum engineering, chemical engineering, natural gas transportation, urban construction, coal industry, shipping, seawater transportation, etc.



Steel-plate-mesh Reinforced Plastic Composite Pipe

Nominal OD(mm)	50	63	75	90	110	160	200
Nominal Pressure(MPa)	1.6	1.6	1.6	1.6	1.6	1.6	1.6

Steel-wire Wound Reinforced Plastic Composite Pipe

Ordinary types:

Nominal OD(mm)	90	110	160	200	250	315	400	500
Nominal Pressure(MPa)	1.6	1.6	1.6	1.6	1.0	1.0	1.0	1.0



Reinforced types:

Nominal OD(mm)	90	110	160	200	250	315	400	500
Nominal Pressure(MPa)	3.5	3.5	3.5	3.5	2.5,1.6	2.5,1.6	1.6	1.6

PE Pipe for Water Supply

Nominal Diameter	Standard Size Ratio														
20~630 (mm)	SDR11			SDR13.6			SDR17		SDR17.6	SDR21		SDR26		SDR33	
	PE63	PE80	PE100	PE63	PE80	PE100	PE80	PE100	PE63	PE80	PE100	PE63	PE100	PE63	PE80
	Nominal Pressure (MPa)														
	1.0	1.25	1.6	0.8	1.0	1.25	0.8	1.0	0.6	0.6	0.8	0.4	0.6	0.32	0.4

Buried PE Pipe for Fuel Gas

Nominal Diameter	Standard Size Ratio			
20~630 (mm)	SDR11		SDR17.6	
	PE80	PE100	PE80	PE100
	Nominal Pressure (MPa)			
	0.8	1.0	0.4	0.6





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Федеральный информационный фонд отечественных и иностранных каталогов на промышленную продукцию

Каталог был представлен на выставке

«Нефть и газ – 2009»

Каталог включен в базу данных
**«Федерального информационного фонда
отечественных и иностранных каталогов на
промышленную продукцию»**

Россия, 105679, Москва, Измайловское шоссе, 44,
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www.ffpk.ru

Электронная копия издания изготовлена с целью её включения в базы данных Федерального информационного фонда отечественных и иностранных каталогов на промышленную продукцию, которые формируются в соответствии с Постановлением Правительства РФ от 24 июля 1997 г. № 950 и Постановлением Правительства РФ от 31 декабря 1999 г. № 2172-р и зарегистрированы Комитетом по политике информатизации при Президенте РФ под №№ 39-50.

2009 год