

# REQUEST FOR PARLIAMENTARY APPROVAL

**SUBMITTED BY:**

**KEN OFORI-ATTA  
(MINISTER FOR FINANCE)**

**TITLE:**

**REQUEST FOR APPROVAL FOR THE WAIVERS OF CUSTOMS DUTIES, TAXES  
AND LEVIES ON MATERIALS AND EQUIPMENT/MACHINERY FOR THE  
CONSTRUCTION OF THE SENTUO OIL REFINERY AT TEMA**

PARLIAMENT OF GHANA LIBRARY  
PARLIAMENT HOUSE  
OSU - ACCRA

17<sup>th</sup> FEBRUARY, 2023

## PM-SOR

### 1. Action Required

1.1. Parliament is respectfully invited to consider and approve the waiver of **Import duties, Import NHIL, Import GETFUND, Import VAT, and EXIM levy**, amounting to Ghana Cedi equivalent of Two Hundred and Six-One Million, Six Hundred and Forty-Eight Thousand, Three Hundred and Fifty-Three United States Dollars (US\$261,648,353). in favour Sentuo Oil Refinery Limited, who is applying for a Strategic Investor, under section 26 (4) of the GIPC Act 2013, Act 865 on materials and equipment.

1.2. The President granted executive approval for the tax waiver in its letter dated February 6, 2023 for the consideration and action of Parliament.

### 2. Background Sentuo of Group Company Limited 5 MTPA Refinery Project

2.1 Sentuo Oil Refinery Limited (hereinafter referred to as Sentuo Petrochemical) is owned by the Sentuo Group Limited, a private joint-stock enterprise which is jointly established by professionals engaged in innovative chemical technology development and industrial application, petrochemical project construction, energy, and petrochemical trade. Sentuo petrochemical is managed and operated in accordance with the joint-stock enterprise model.

2.2 The company has invested over US\$200 million in the country since its establishment in 2010. It has constructed the Sentuo 800,000 T/A steel project (total investment of US\$120 million) and Sentuo ceramics project (Phase I project investment of US\$80 million) in Tema Economic Development Zone, Ghana.

#### 2.0 Project Overview

2.1 The Sentuo Oil Refinery Ltd 5 MTPA Refinery Project, Phase 1 is envisioned to be a medium scale refinery, oriented to export Gasoline, Jet Fuel and Diesel and to satisfy Ghana domestic market demand for Jet Fuel, Gasoline and Diesel.

2.2 The Refinery will have a capacity of 2 MTPA of crude oil, which will be purchased from Middle East crude oil markets and Nigeria.

2.3 The Refinery's main products will be Gasoline, Jet Fuel and Diesel. Partial saturated liquefied petroleum gas (LPG), fuel oil, asphalt and sulfuric acid will be sold as products.

2.4 The Refinery Project will be designed, constructed, and operated in a manner which conforms to all health, safety, and environmental requirements of Ghana. In addition, the Refinery's design will adhere to industry best practices as it pertains to health, safety and environmental controls and monitoring.

2.5 The Refinery Project will comply with all aspects with federal, regional, and local Ghana laws and regulations.

#### 3.0 Primary Project Facilities and Refinery Balance

The design of the Sentuo Oil Refinery Ltd 5 MTPA Refinery Project Phase 1 includes 8 process units within the Refinery along with associated utilities, offsite and auxiliary facilities needed to support Refinery operations. The facilities inside the refinery are shown in Table 1.5-1 and Table 1.5-2. The refinery balance is shown in Table 1.5-3.

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Table 1.5-1 Primary Project Facilities (Phase 1)					
No.	Unit No.	Description	Units	Capacity	Remarks
1	100	General plot plan and transportation			
1.1	101	General Plot Plan			
1.2	102	Grading Plan			
1.2	103	Plant vertical layout			
1.3	104	Roads and Rain Water Drainage			
1.4	105	Plant Protection Facilities			
1.5	106	Pipeline Coordination			
2	200	Process units			
2.1	201	2 MTPA Crude Distillation Unit	MTPA	2	CDU
2.2	202	1 MTPA Fluid Catalytic Cracking Unit	MTPA	1	FCC
2.3	210	0.4 MTPA Gasoline Hydrotreating Unit	MTPA	0.4	GHT
2.4	211	0.4 MTPA Catalytic Reforming Unit	MTPA	0.4	CRU, including NHT, PSA
2.5	215	0.8 MTPA Diesel Hydrotreating Unit	MTPA	0.8	DHT
2.6	258	50 t/h Sour Water Stripping Unit	t/h	50	SWS
2.7	259	80 t/h Amine Regeneration Unit	t/h	80	ARU
2.8	260	0.05 MTPA Sulfuric Acid Unit	MTPA	0.05	SAU
2.9	275	Central Control Room	m <sup>2</sup>		CCR
2.1	2751	Field Auxiliary Room	m <sup>2</sup>		FAR
3	300	Storage and Transportation Facilities			
3.1	301	Crude Oil Tank Farm	m <sup>3</sup>	6x30000	
3.2	320	Gasoline tank farm	m <sup>3</sup>	10x5000	
3.3	303	Diesel Tank Farm	m <sup>3</sup>	6x10000	
3.4	311	Aviation Kerosene Tank Farm	m <sup>3</sup>	4x10000	
3.5	324	Spheric Tank Farm	m <sup>3</sup>	2x200	
				4x1000	
3.6	304	Fuel Oil Tanks Farm	m <sup>3</sup>	2x300	
3.7	305	Heavy Oil Tanks Farm	m <sup>3</sup>	4x5000	
				2x20000	
3.8	302	Intermediate Product Tanks Farm	m <sup>3</sup>	10x1000	
3.9	3022	Sump Oil Tanks Farm	m <sup>3</sup>	1x2000	
				1x2000	
3.1	351	Truck Loading and Unloading Terminal			
3.11	381	Flare system			
3.12	384	Plant Process and Utility Pipe System			
4	400	Fire Fighting			
4.1	401	Fire Fighting Water System	L/s m <sup>3</sup>	360	
				7500	
4.2	4041	Foam Station 1#	L/s	140	
4.3	4042	Foam Station 2#	L/s	80	
5	500	Water Supply and Effluents			
5.1	501	Effluent Treatment Plant	t/h	100	
5.2	502	Cooling Water Plant	m <sup>3</sup> /h	6000	
5.3	505	Plant Water Supply / Drainage Piping Systems and Fire Water Piping System			
5.4	5151	Effluent Lifting Pump Station 1#	t/h	50	
6	600	Power Supply and Telecommunications			
6.1	601	Main Substation	m <sup>2</sup>		
6.2	602	Substation 1#	m <sup>2</sup>		
6.3	620	Plant main cabling routing and street lighting			

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No.	Unit No.	Description	Units	Capacity	Remarks
6.4	630	Plant communication layout			
7	700	Auxiliary Facilities			
7.1	701	Central laboratory and environmental monitoring station	m2		
7.2	704	Maintenance Workshop	m2	882	
7.3	709	Plant Warehouse And Laydown Area	m2	450	
7.4	712	Plant & Instrument Air System	Nm3/h		
7.5	713	Deminerlized Water System	t/h		
7.6	714	Steam Condensate System	t/h		
7.7	719	Truck Loading and Unloading Parking Lot	m2		
7.8	721	Chemicals Warehouse	m2	167.4	
8	800	Service Engineering			
8.1	802	Comprehensive building	m2	4160	
8.2	803	Staff dormitory building	m2	3000	

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Table 1.5-2 Primary Project Facilities (Phase 2)					
No.	Unit No.	Description	Units	Capacity	Remarks
1	100	General plot plan and transportation			
1.1	101	General Plot Plan			
1.2	102	Grading Plan			
1.3	103	Plant vertical layout			
1.4	104	Roads and Rain Water Drainage			
1.5	105	Plant Protection Facilities			
1.6	106	Pipeline Coordination			
2	200	Process units			
2.1	2208	3 MTPA Atmospheric Distillation Unit	MTPA	3	ADU
2.2	2202	1 MTPA Fluid Catalytic Cracking Unit	MTPA	1	FCC
2.3	2210	0.4 MTPA Gasoline Hydrotreating Unit	MTPA	0.4	GHT
2.4	2211	0.4 MTPA Catalytic Reforming Unit	MTPA	0.4	CRU, including NHT, PSA
2.5	2213	17000Nm <sup>3</sup> /h Hydrogen Production Unit	Nm <sup>3</sup> /h	17000	
2.6	2215	0.8 MTPA Diesel Hydrotreating Unit	MTPA	0.8	DHT
2.7	2258	50 t/h Sour Water Stripping Unit	t/h	50	SWS
2.8	2259	80 t/h Amine Regeneration Unit	t/h	80	ARU
2.9	2219	0.15 MTPA LPG Splitter Unit	MTPA	0.15	
2.1	2221	0.2 MTPA Isomerization Unit	MTPA	0.2	
2.11	2222	0.03 MTPA MTBE Unit	MTPA	0.03	
2.12	2282	0.06 MTPA Polypropylene Unit	MTPA	0.06	
2.13	275	Central Control Room	m <sup>2</sup>		CCR
2.14	2751	Field Auxiliary Room	m <sup>2</sup>		FAR
3	300	Storage and Transportation Facilities			
3.1	301	Crude Oil Tank Farm	m <sup>3</sup>	4x50000	
3.2	320	Gasoline tank farm	m <sup>3</sup>	4x10000	
3.3	303	Diesel Tank Farm	m <sup>3</sup>	6x10000	
3.4	311	Aviation Kerosene Tank Farm	m <sup>3</sup>	2x10000	
3.5	324	Spheric Tank Farm	m <sup>3</sup>	2x1000	
3.6	304	Fuel Oil Tanks Farm	m <sup>3</sup>	2x1000	
3.7	305	Heavy Oil Tanks Farm	m <sup>3</sup>	4x20000	
3.8	302	Intermediate Product Tanks Farm	m <sup>3</sup>	1x1000	
				6x2000	
3.9	3022	Sump Oil Tanks Farm	m <sup>3</sup>	4x2000	
3.1	351	Truck Loading and Unloading Terminal			

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No.	Unit No.	Description	Units	Capacity	Remarks
3.11	381	Flare system			
3.12	384	Plant Process and Utility Pipe System			
4	400	Fire Fighting			
4.1	401	Fire Fighting Water System	L/s m3	360	
				7500	
4.2	4041	Foam Station 1#	L/s	140	
4.3	4042	Foam Station 2#	L/s	80	
5	500	Water Supply and Effluents			
5.1	502	Cooling Water Plant	m3/h	6000	
5.2	505	Plant Water Supply / Drainage Piping Systems and Fire Water Piping System			
5.3	5151	Effluent Lifting Pump Station 2#	t/h	50	
6	600	Power Supply and Telecommunications			
6.1	601	Main Substation	m2		
6.2	602	Substation 1#	m2		
6.3	620	Plant main cabling routing and street lighting			
6.4	630	Plant communication layout			
7	700	Auxiliary Facilities			
7.1	701	Central laboratory and environmental monitoring station	m2		
7.2	704	Maintenance Workshop	m2		
7.3	709	Plant Warehouse And Laydown Area	m2		
7.4	712	Plant & Instrument Air System	Nm3/h		
7.5	713	Demineralized Water System	t/h		
7.6	714	Steam Condensate System	t/h		
7.7	719	Truck Loading and Unloading Parking Lot	m2		
7.8	721	Chemicals Warehouse	m2		
8	800	Service Engineering			
8.1	802	Comprehensive building	m2		
8.2	803	Staff dormitory building	m2		

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No.	Stream Name	Phase 1 kt/a	Phase 2 kt/a	Phase 1&2 kt/a
1	Feed			
1.1	Oman Crude oil	1050	2100	3150
1.2	Nigeria Crude oil	450	900	1350
1.3	Venezuela Crude oil	300	0	300
1.4	Naphtha	100	-100	0
1.5	PA	108.4	163.3	271.7
1.6	Methanol	0	8.9	8.9
	Input total	2008.4	3072.2	5080.6
2	Pro.			
2.1	LPG	59.8	35.3	95.1
2.2	Gasoline	650.1	1001.8	1651.9
2.3	Diesel	479.3	1008	1487.3
2.4	Kerosene	128.1	85.6	213.7
2.5	Fuel oil	46.1	86.1	132.2
2.6	PP	0	56	56
2.7	Asphalt	173.3	0	173.3
2.8	Sulfuric Acid	24.6	36.9	61.5
	Pro. Subtotal	1561.3	2309.7	3871
3	Fuel			
3.1	Fuel gas	213.4	344.3	557.7
3.2	Coke	82.3	153.8	236
	Fuel Subtotal	295.6	498	793.7
4	Other		27.5	27.5
5	Loss	151.5	236.9	388.4
6	Composite			
6.1	Composite commodity rate	80.50%		
6.2	Diesel-Gasoline ratio	0.9		
6.3	Gasoline, Kerosene and Diesel	69.72%		

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### 4.0 Financial and Economic Analysis

4.1 The total investment for the phase I is estimated at US\$893.91 million. This amount comprises of the capital investment of US\$753.85 million, the interest of construction loan of US\$8.95 million, and working capital of US\$131.11 million. Based on the prices of raw material and products applied, it is anticipated that the project will generate an average annual income of US\$1,013.50 million after completion, and an average annual profit of US\$127.92 million. The internal rate of return after tax is 14.11%, which is far higher than the benchmark rate of return. (See full detailed information in the feasibility study report).

4.2 The total investment of the phase II is estimated at US\$1087.92 million, including capital investment of US\$862.10 million, interest of construction loan of US\$10.23 million, and working capital of US\$215.59 million. Based on the prices of raw material and products applied, it is anticipated that the project will generate an average annual income of US\$1579.43 million after completion, and an average annual profit of US\$155.00 million. The internal rate of return after tax is 14.19%. (See full detailed information in the feasibility study report).

4.3 The project is economically viable under the assumptions presented in the report. The main financial indicators of phase 1 and phase 2 are summarized in table 1.6-1 and table

Table 1.6-1 Summary for Financial Indicators (Phase 1)

No.	Item	Unit	Quantity	Remarks
1	Basic Data	Ten thousand USD		
1	Total Investment	Ten thousand USD	89,391	
1.1	Capital Investment	Ten thousand USD	75,385	
1.2	Interest of Construction Loan	Ten thousand USD	480	
1.3	Working Capital	Ten thousand USD	13,111	
2	Investment for Approval	Ten thousand USD	75,865	
3	Project Equity	Ten thousand USD	68,385	75%
4	Annual Average Operating Income	Ten thousand USD	101,350	
5	Annual Average Total Operating Cost	Ten thousand USD	88,061	
6	Annual Average VAT	Ten thousand USD	3,978	
7	Annual Average Business Tax and	Ten thousand USD	477	



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	Surcharge			
8	Annual Average Total Profit	Ten thousand USD	12,792	
9	Annual Average Earnings Interest and Tax (EBIT)	Ten thousand USD	13,445	
10	Annual Average Income Tax	Ten thousand USD	3,198	
11	Annual Average Net Profit	Ten thousand USD	9,594	
12	Processing Cost per Ton	USD/Ton	67.57	
13	Processing Cash Cost per Ton	USD/Ton	33.47	
14	Net Profit per Ton	USD/Ton	50.32	
<b>ii Financial indicators</b>				
1	IRR before Tax	%	17.66	
2	IRR after Tax	%	14.11	
3	NPV after Tax	Ten thousand USD	41,459	
4	NPV after Tax	Ten thousand USD	21,151	
5	Payback Period before Tax	Year	6.97	Including 2-year construction period
6	Payback Period after Tax	Year	7.95	Including 2-year construction period
7	IRR of Equity	%	16.45	
8	Return on Investment (ROI)	%	15.04	
9	Return on Equity (ROE)	%	16.77	
10	Interest Coverage Ratio (ICR)		10.14	Within the repayment period
11	Debt Service Coverage Ratio (DSCR)		1.36	Within the repayment period

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Table 1.6-2 Summary for Financial Indicators (Phase 2)

No.	Item	Unit	Quantity	Remarks
I	Basic Data			
1	Total Investment	Ten thousand USD	108,792	
1.1	Capital Investment	Ten thousand USD	86,210	
1.2	Interest of Construction Loan	Ten thousand USD	1,023	
1.3	Working Capital	Ten thousand USD	21,559	
2	Investment for Approval	Ten thousand USD	87,233	
3	Project Equity	Ten thousand USD	65,425	75.00%
4	Annual Average Operating Income	Ten thousand USD	157,943	
5	Annual Average Total Operating Cost	Ten thousand USD	141,867	
6	Annual Average VAT	Ten thousand USD	4,798	
7	Annual Average Business Tax and Surcharge	Ten thousand USD	576	
8	Annual Average Total Profit	Ten thousand USD	15,500	
9	Annual Average Earnings before Interest and Tax (EBIT)	Ten thousand USD	16,532	
10	Annual Average Income Tax	Ten thousand USD	3,875	
11	Annual Average Net Profit	Ten thousand USD	11,625	
12	Processing Cost per Ton	USD/Ton	46.36	
13	Processing Cash Cost per Ton	USD/Ton	20.38	
14	Net Profit per Ton	USD/Ton	39.01	
II	Financial Indicators			
1	IRR before Tax	%	17.83	
2	IRR after Tax	%	14.19	
3	NPV before Tax	Ten thousand USD	51,041	
4	NPV after Tax	Ten thousand USD	26,025	
5	Payback Period before Tax	Year	7.01	Including 2-year



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				construction period
6	Payback Period after Tax	Year	8.04	Including 2-year construction period
7	IRR of Equity	%	17.21	
8	Return on Investment (ROI)	%	15.20	
9	Return on Equity (ROE)	%	17.77	
10	Interest Coverage Ratio (ICR)		9.02	Within the repayment period
11	Debt Service Coverage Ratio (DSCR)		1.42	Within the repayment period

### 5.0 Employment

5.1 The refinery anticipates employing about 420 personnel. Staffing for the Refinery primarily consists of process units and auxiliary facilities personnel and is therefore driven by the characteristics of the Refinery's facilities which range from complex processing units to somewhat simplified utility and offsite systems. In addition, a second major driver is that the Refinery operates continuously with a minimum annual on-stream time of 8,400 hours.

5.2 For continuously operated units, there will be three shifts rotating in the daily cycle with a fourth shift required as relief, while non-continuously operated units, two shifts or one shift according to needs. The organization and staffing of the factory are shown in Table 12.2-1.

Table 12.2-1 Organization and Staffing

No.	Unit	Staffing
I	Process unit	
1	2 MTPA Crude Distillation Unit	20
2	1 MTPA Fluid Catalytic Cracking Unit	36
3	0.4 MTPA Gasoline Hydrotreating Unit	20
4	0.4 MTPA Catalytic Reforming Unit	20
5	0.8 MTPA Diesel Hydrotreating Unit	20
6	50 t/h Sour Water Stripping Unit	24



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7	80 t/h Amine Regeneration Unit	
8	50 kTPA Sulfuric Acid Unit	
	<b>Subtotal</b>	<b>140</b>
II	Storage, Utilities, and Auxiliary Facilities	
1	Central Control Room	15
2	Environmental Monitoring Station	4
3	Plant Storage and transportation	70
4	Maintenance Workshop	18
5	Plant Warehouse and Laydown Area	6
6	Thermal system	22
7	Fire Fighting Station	15
8	Effluent Treatment Plant	15
9	Cooling Water Plant	15
10	Fire Fighting Water System	8
11	Plant main cabling routing and street lighting	15
12	Plant communication layout	7
	<b>Subtotal</b>	<b>210</b>
III	Others	
1	Administrative staff	70
	<b>Subtotal</b>	<b>70</b>
	<b>Total</b>	<b>420</b>

#### 4. JUSTIFICATION FOR TAX EXEMPTION

4.1 Subsection 4 of the Ghana Investment Promotion Centre (GIPC) Act 2013, Act 865, states that "For the purpose of promoting identified strategic or major investment, the Board may in consultation with appropriate government agencies and with the approval of the President.

- a. specify priority areas of investment and their applicable benefits and incentives; and
- b. negotiate specific incentive packages for strategic investments in addition to the incentives available to any enterprise under the tax, customs and other laws referred to in subsection (1).

4.2 Accordingly, the Attorney General office provided clarity on section 26 subsection 4 which said that Parliamentary ratification would be required.

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### 5. TAX ASSESSMENT/FISCAL IMPACT

The Ghana Revenue Authority (GRA) has determined the quantum of taxes payable on materials and equipment to be procured under the project. Gross taxes per the GRA computation amounted to Two Hundred and Six-One Million, Six Hundred and Forty-Eight Thousand, Three Hundred and Fifty-Three United States Dollars (US\$261,648,353). The breakdown is summarized below:

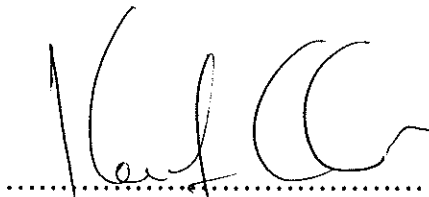
#### Summary of duties for Sentuo Oil Refinery

<b>Tax to be exempted</b>	<b>Phase I</b>	<b>Phase II</b>	<b>Total</b>
Import Duty	51,576,231	34,128,464	85,704,695
Import NHIL	12,721,977	10,567,348	23,289,325
Import GETFUND	12,721,977	10,567,348	23,289,325
Import VAT	66,790,381	55,478,575	122,268,956
EXIM Levy	4,039,465	3,056,586	7,096,051
<b>Total</b>	<b>147,850,032</b>	<b>113,798,320</b>	<b>261,648,353</b>

### 6. CONCLUSION

6.1 From the above submissions and the economic and financial analysis of the project indicate that it is a viable project and therefore worthy of Government support. Additionally, the project has met all the administrative requirements and has all the relevant permit to commerce construction.

6.3 Parliament is respectfully invited to consider and approve the waiver of Import duties, Import NHIL, Import GETFUND, Import VAT, and EXIM levy in favour of Sentuo Oil Refinery Limited.



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**KEN OFORI-ATTA**

**(MINISTER FOR FINANCE)**

#### Attachment

1. Tax Assessment
2. Feasibility report
3. Other documents

*Eng.*

# **MASTER LIST TAX ASSESSMENT**



**TAX ASSESSMENT**  
**PHASE1 MASTER LIST OF MACHINERY-SENTUO OIL REFINERY**

Item No	Equipment Description	unit	Qty	CIF (USD)	I/D Rate	Imp. Duty	NHIL 2.5%	Gfund Levy 2.5%	Imp. VAT 12.5%	Exim Levy 0.75%	TOTAL (USD)	
<b>Crude Distillation Unit</b>												
1	Steel Structure	Ton	980.08	1,163,300	20%	232660	34899	34899	183220	8725	494,403	
2	Primary Flash Column		1	418,200	5%	20910	10978	10978	57633	3137	103,635	
3	Crude Column	piece	1	836,600	5%	41830	21961	21961	115294	6275	207,320	
4	Atmospheric Stripper Column	piece	1	213,800	5%	10690	5612	5612	29464	1604	52,982	
5	Vacuum Column	piece	1	1,584,800	5%	79240	41601	41601	218405	11886	392,733	
6	Primary electric desalting tank	piece	1	323,200	20%	64640	9696	9696	50904	2424	137,360	
7	Secondary electric desalting tank	piece	1	323,200	20%	64640	9696	9696	50904	2424	137,360	
8	Primary Flash Column Reflux Drum	piece	1	105,000	20%	21000	3150	3150	16538	788	44,625	
9	Crude Column Reflux Drum	piece	1	37,800	20%	7560	1134	1134	5954	284	16,065	
10	Vacuum Column Overhead Drum	piece	1	109,000	20%	21800	3270	3270	17168	818	46,325	
11	Fuel Gas Knockout Drum	piece	1	6,800	20%	1360	204	204	1071	51	2,890	
12	Oily Water Deoiling Drum	piece	1	20,200	20%	4040	606	606	3182	152	8,585	
13	Low-pressure Fuel Gas Knockout Drum	piece	1	6,800	20%	1360	204	204	1071	51	2,890	
14	Demulsifier Drum	piece	1	14,200	20%	2840	426	426	2237	107	6,035	
15	corrosion inhibitor injection st	set	1	18,800	5%	940	494	494	2591	141	4,659	
16	Blow torch Condensate hydraulic delivery tank	piece	1	6,400	20%	1280	192	192	1008	48	2,720	
17	Cold Crude-Primary Flash Column OVHD Exchanger	piece	2	241,400	5%	12070	6337	6337	33268	1811	59,822	
18	Cold Crude-Cold Column OVHD Exchanger	piece	1	186,000	5%	9300	4883	4883	25633	1395	46,093	
19	Cold Crude-Kero PA Exchanger	piece	2	222,400	5%	11120	5838	5838	30650	1668	55,114	
20	Cold Crude-LVGO Exchanger	piece	2	126,800	5%	6340	3329	3329	17475	951	31,423	
21	Cold Crude-Side-cut Oil PA Exchanger	piece	2	181,200	5%	9060	4757	4757	24972	1359	44,904	

22	Cold Crude-Kero Product Exchanger	piece	2	
23	Cold Crude-VR (VI) Exchanger	piece	1	
24	Desalted Crude-S.R Diesel (II) Exchanger	piece	2	
25	Desalted Crude-VR (V) Exchanger	piece	2	
26	Desalted Crude-S.R Diesel (I) Exchanger	piece	2	
27	Desalted Crude-LGO PA Exchanger	piece	2	
28	Desalted Crude-VR (IV) Exchanger	piece	2	
29	Desalted Crude-VR (III) Exchanger	piece	2	
30	Desalted Crude-VR (II) Exchanger	piece	4	
31	Primary Bottom Oil-HGO (I) Exchanger	piece	2	
32	Primary Bottom Oil-VR (I) Exchanger	piece	2	
33	Primary Bottom Oil-AR Exchanger	piece	2	
34	Primary Flash Column OVHD Trim Cooler	piece	1	
35	Cold Column OVHD Trim Cooler	piece	2	
36	S.R Diesel Trim Cooler	piece	2	
37	LVGO Trim Cooler	piece	1	
38	VR -Hot Water Exchanger	piece	2	
39	S.R Naptha Trim Cooler	piece	1	
40	Crude oil- vacuum 3rd heat exchanger	piece	1	
41	Crude oil- vacuum 2nd heat exchanger	piece	1	
42	Desalted Crude-vacuum 2nd and 1st mid heat exchanger	piece	2	
43	Desalted Crude-vacuum 3rd and 2nd mid heat exchanger	piece	1	
44	Desalted Crude-atmospheric 3rd and 2nd mid heat exchanger	piece	1	

97,200	5%	4860	2552	2552	13395	729	24,087
77,800	5%	3890	2042	2042	10722	584	19,280
126,400	5%	6320	3318	3318	17420	948	31,324
284,400	5%	14220	7466	7466	39194	2133	70,478
177,400	5%	8870	4657	4657	24448	1331	43,962
222,400	5%	11120	5838	5838	30650	1668	55,114
179,000	5%	8950	4699	4699	24668	1343	44,358
155,200	5%	7760	4074	4074	21389	1164	38,461
310,800	5%	15540	8159	8159	42832	2331	77,020
634,000	5%	31700	16643	16643	87373	4755	157,113
496,000	5%	24800	13020	13020	68355	3720	122,915
284,400	5%	14220	7466	7466	39194	2133	70,478
176,200	5%	8810	4625	4625	24283	1322	43,665
172,000	5%	8600	4515	4515	23704	1290	42,624
182,800	5%	9140	4799	4799	25192	1371	45,300
48,600	5%	2430	1276	1276	6698	365	12,044
222,600	5%	11130	5843	5843	30677	1670	55,163
65,200	5%	3260	1712	1712	8985	489	16,157
63,200	5%	3160	1659	1659	8710	474	15,662
63,200	5%	3160	1659	1659	8710	474	15,662
222,600	5%	11130	5843	5843	30677	1670	55,163
65,200	5%	3260	1712	1712	8985	489	16,157
65,200	5%	3260	1712	1712	8985	489	16,157

45	Primary Bottom Oil-vacuum 3rd and 2nd mid heat exchanger	piece	2	
46	Kero PA Trim Cooler	piece	1	
47	VGO-Hot Water Exchanger	piece	2	
48	Fresh / Spent Desalter Water Exchanger	piece	1	
49	Spent Desalter Water Trim Cooler	piece	2	
50	Sealed Oil-Hot Water Exchanger	piece	2	
51	1st Stage Ejector Condenser	piece	2	
52	2nd Stage Ejector Condenser	piece	1	
53	3rd Stage Ejector Condenser	piece	1	
54	Primary Flash Column OVHD Air Cooler	piece	3	
55	Crude Column OVHD Air Cooler	piece	1	
56	vacuum 1st and vacuum overhead Air Cooler	piece	2	
57	Vacuum overhead 1st Stage Ejector Proprietary equipment	piece	1	
58	Vacuum overhead 2nd Stage Ejector Proprietary equipment	piece	1	
59	Vacuum overhead 3rd Stage Ejector Proprietary equipment	piece	1	
60	1st Stage Desalter injection mixer	piece	1	
61	2nd Stage Desalter injection mixer	piece	1	
62	1.0MPa overheated steam muffler	piece	1	
63	atmosphere furnace high pressure fuel gas flame arrestor	piece	1	
64	atmosphere furnace continuous lamp flame arrestor	piece	1	
65	vacuum furnace high pressure fuel gas flame arrestor	piece	1	
66	vacuum furnace continuous lamp flame arrestor	piece	1	

222,600	5%	11130	5843	5843	30677	1670	55,163
48,600	5%	2430	1276	1276	6698	365	12,044
126,400	5%	6320	3318	3318	17420	948	31,324
63,200	5%	3160	1659	1659	8710	474	15,662
177,400	5%	8870	4657	4657	24448	1331	43,962
253,600	5%	12680	6657	6657	34949	1902	62,845
465,400	5%	23270	12217	12217	64138	3491	115,332
116,000	5%	5800	3045	3045	15986	870	28,746
60,000	5%	3000	1575	1575	8269	450	14,869
163,000	5%	8150	4279	4279	22463	1223	40,393
52,400	5%	2620	1376	1376	7221	393	12,985
96,200	5%	4810	2525	2525	13258	722	23,840
22,000	5%	1100	578	578	3032	165	5,452
22,000	5%	1100	578	578	3032	165	5,452
22,000	5%	1100	578	578	3032	165	5,452
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
1,000	5%	50	26	26	138	8	248
1,000	5%	50	26	26	138	8	248
1,000	5%	50	26	26	138	8	248
1,000	5%	50	26	26	138	8	248
1,000	5%	50	26	26	138	8	248

67	atmosphere furnace low pressure fuel gas flame arrester	piece	1
68	vacuum circulation filter	piece	1
69	vacuum circulation filter	piece	1
70	vacuum 2nd mid filter	piece	1
71	vacuum 1st mid filter	piece	1
72	vacuum 3rd filter	piece	1
73	Vacuum steam filter	piece	1
74	Mixed crude sampler	piece	1
75	Mixed crude oil sampler after primary desalination	piece	1
76	1st stage electric desalination five-unit sampling cooler	piece	1
77	2nd stage electric desalination mixed crude oil sampler	piece	1
78	2nd stage electric desalination five-unit sampling cooler	piece	1
79	Primary Flash Column non-condensable gas sampler	piece	1
80	Primary Flash Column oil sampler	piece	1
81	Crude Column non-condensable gas sampler	piece	1
82	Crude Column oil sampler	piece	1
83	atmospheric 1st Kero sampler	piece	1
84	atmospheric 2nd Kero sampler	piece	1
85	atmospheric 3rd Kero sampler	piece	1
86	straight run diesel sampler	piece	1
87	Vacuum overhead non-condensable gas sampler	piece	1
88	Vacuum overhead oil sampler	piece	1
89	vacuum 1st oil sampler	piece	1
90	vacuum 2nd oil sampler	piece	1
91	vacuum 3rd oil sampler	piece	1
92	straight run gas oil sampler	piece	1
93	residue/bituman sampler	piece	1

50	26	26	26	138	8	248
1,000	5%	50	26	26	8	248
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
1,400	5%	70	37	37	11	347
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50
200	5%	10	5	5	2	50

94	Oily Water Deciling Drum samoler	piece	1	
95	Desalter Circulation Pump	piece	2	
96	Primary Flash Column Reflux Pump	piece	2	
97	Primary Bottom Oil Pump	piece	2	
98	Crude Column Reflux Pump	piece	2	
99	Kero Product Pump	piece	2	
100	LGO Product Pump	piece	2	
101	HGO Pump	piece	2	
102	Kero PA Pump	piece	3	
103	LGO PA Pump	piece	3	
104	AR Pump	piece	2	
105	Cracked Slop Pump	piece	2	
106	LVGO Pump	piece	2	
107	MVGO Pump	piece	2	
108	HVGO Pump	piece	2	
109	Overflash Pump	piece	2	
110	VR Pump	piece	2	
111	Vacuum Sour Water Pump	piece	2	
112	Side-cut Oil Pump	piece	2	
113	Circulating Water Booster Pump	piece	2	
114	Desalter Crude Pump	piece	1	
115	Demulsifier Pump	piece	2	
116	Crude furnace	piece	1	
117	Vacuum furnace	piece	1	
118	Combined waste heat recovery system	set	1	
119	Carbon Steel Pipe	meter	25349	
120	Alloy Steel Pipe	meter	873	
121	stainless steel pipe	meter	1111.5	
122	process valve	piece	3522	
123	pipe fittings	piece	13141	
124	Pipe Gasket	piece	7644	
125	Pipe flange	piece	7421	
126	screw bolt	set	41004	

5%	600	30	16	16	83	5	149
5%	36,000	1800	945	945	4961	270	8,921
5%	63,600	3180	1670	1670	8765	477	15,761
5%	110,000	5500	2888	2888	15159	825	27,259
5%	96,000	4800	2520	2520	13230	720	23,790
5%	75,000	3750	1969	1969	10336	563	18,586
5%	75,000	3750	1969	1969	10336	563	18,586
5%	85,200	4260	2237	2237	11742	639	21,114
5%	127,800	6390	3355	3355	17612	959	31,670
5%	85,200	4260	2237	2237	11742	639	21,114
5%	120,000	6000	3150	3150	16538	900	29,738
5%	9,000	450	236	236	1240	68	2,230
5%	43,000	2150	1129	1129	5926	323	10,656
5%	47,400	2370	1244	1244	6532	356	11,746
5%	68,000	3400	1785	1785	9371	510	16,851
5%	40,200	2010	1055	1055	5540	302	9,962
5%	140,000	7000	3675	3675	19294	1050	34,694
5%	18,000	900	473	473	2481	135	4,461
5%	25,200	1260	662	662	3473	189	6,245
5%	25,200	1260	662	662	3473	189	6,245
5%	25,200	1260	662	662	3473	189	6,245
5%	36,000	1800	945	945	4961	270	8,921
5%	848,200	42410	22265	22265	116893	6362	210,195
5%	528,200	26410	13865	13865	72793	3962	130,895
5%	902,600	45130	23693	23693	124390	6770	223,676
5%	44,260	2213	1162	1162	6100	332	10,968
5%	11,910	596	313	313	1641	89	2,951
5%	48,400	2420	1271	1271	6670	363	11,994
10%	61,590	6159	1694	1694	8892	462	18,900
20%	10,270	2054	308	308	1618	77	4,365
20%	7,170	1434	215	215	1129	54	3,047
20%	9,280	1856	278	278	1462	70	3,944
20%	32,030	6406	961	961	5045	240	13,613

127	safety valve	piece	27
128	Anti-corrosion material	ton	9.5
129	Insulation materials	m <sup>3</sup>	475
130	Fireproof Materials	ton	19.23
131	Pipe ground wire	meter	100
132	electrical cable	meter	29655
133	Cable tray	ton	14.5
134	lighting fixtures	set	389
135	Lightning protection copper grounding wire	meter	685
136	Galvanized flat steel ground wire	meter	3250
137	earth electrode	piece	27
138	Bimetallic thermometer	piece	72
139	Metal clad thermistor	piece	94
140	assembled thermistor	piece	14
141	pressure gauge	piece	137
142	Pressure Transmitter	piece	60
143	Differential pressure transmitter	piece	41
144	Throttling device	piece	39
145	wedge flowmeter	piece	12
146	Rotameter	piece	1
147	Vortex flowmeter	piece	7
148	Electromagnetic Flowmeter	piece	2
149	Positive Displacement Flowmeter	piece	4
150	Coriolis Mass Flow Meter	piece	3
151	Glass plate level gauge	piece	11
152	Differential pressure level transmitter	piece	11
153	Displacer Level Gauge	piece	2
154	float level gauge	piece	12
155	Combustible and toxic gas detectors	piece	40
156	Regulating valve	piece	38
157	Pneumatic switch valve	piece	5
158	Self-operated regulating valve	piece	2

122,200	10%	12220	3361	3361	17643	917	37,500
9,000	20%	1800	270	270	1418	68	3,825
74,400	20%	14880	2232	2232	11718	558	31,620
115,400	20%	23080	3462	3462	18176	866	49,045
1,600	20%	320	48	48	252	12	680
826,400	20%	165280	24792	24792	130158	6198	351,220
27,400	20%	5480	822	822	4316	206	11,645
227,200	20%	45440	6816	6816	35784	1704	96,560
19,000	20%	3800	570	570	2993	143	8,075
8,200	20%	1640	246	246	1292	62	3,485
6,400	20%	1280	192	192	1008	48	2,720
14,400	5%	720	378	378	1985	108	3,569
28,200	5%	1410	740	740	3886	212	6,988
4,200	5%	210	110	110	579	32	1,041
6,800	5%	340	179	179	937	51	1,685
120,000	5%	6000	3150	3150	16538	900	29,738
82,000	5%	4100	2153	2153	11301	615	20,321
78,000	5%	3900	2048	2048	10749	585	19,329
240,000	5%	12000	6300	6300	33075	1800	59,475
7,000	5%	350	184	184	965	53	1,735
14,000	5%	700	368	368	1929	105	3,469
6,000	5%	300	158	158	827	45	1,487
96,000	5%	4800	2520	2520	13230	720	23,790
120,000	5%	6000	3150	3150	16538	900	29,738
8,000	5%	400	210	210	1103	60	1,983
22,000	5%	1100	578	578	3032	165	5,452
12,000	5%	600	315	315	1654	90	2,974
24,000	5%	1200	630	630	3308	180	5,948
120,000	5%	6000	3150	3150	16538	900	29,738
472,600	5%	23630	12406	12406	65130	3545	117,116
50,000	10%	5000	1375	1375	7219	375	15,344
20,000	10%	2000	550	550	2888	150	6,138

159	Instrumentation pipe	meter	7603
160	Instrument valve	piece	374
161	Instrumentation cable	meter	101390
162	water supply and drainage pipeline	meter	1045
163	water supply and drainage valve	piece	10
164	firehydrants and fire monitors	set	21
165	fire extinguisher	piece	106
166	eye washer	set	5
167	Demulsifier	ton	90
168	corrosion inhibitor	ton	45
169	corrosion inhibitor injection station	set	1
<b>Fluid catalytic cracker</b>			
1	Steel Structure	ton	2382
2	Settler	piece	1
3	First Reactor Riser	set	2
4	Settler High Efficiency Single Cyclone Separator	set	4
5	Second Reactor Riser	set	1
6	standby inclined tube	piece	1
7	Regenerator	piece	1
8	Regenerator High Efficiency First Stage Cyclone Separator	set	8
9	Regenerator High Efficiency Second Stage Cyclone Separator	set	8
10	External circulation tube	piece	1
11	First stage regeneration inclined tube	piece	1
12	Second stage regeneration inclined tube	piece	1
13	First stage riser reactor	piece	1
14	crude oil feed nozzle	piece	4
15	Second stage riser reactor	piece	1

84,000	10%	8400	2310	2310	12128	630	25,778
172,000	10%	17200	4730	4730	24833	1290	52,783
175,200	20%	35040	5256	5256	27594	1314	74,460
53,400	20%	10680	1602	1602	8411	401	22,695
6,000	10%	600	165	165	866	45	1,841
9,800	5%	490	257	257	1351	74	2,429
2,400	5%	120	63	63	331	18	595
16,800	20%	3360	504	504	2646	126	7,140
540,000	5%	27000	14175	14175	74419	4050	133,819
180,000	5%	9000	4725	4725	24806	1350	44,606
16,000	5%	800	420	420	2205	120	3,965
-							
-							
2,383,700	20%	476740	71511	71511	375433	17878	1,013,073
1,356,000	5%	67800	35595	35595	186874	10170	336,034
188,600	5%	9430	4951	4951	25991	1415	46,737
353,800	5%	17690	9287	9287	48758	2654	87,676
76,600	5%	3830	2011	2011	10556	575	18,982
84,000	5%	4200	2205	2205	11576	630	20,816
3,537,600	20%	707520	106128	106128	557172	26532	1,503,480
943,400	5%	47170	24764	24764	130012	7076	233,786
825,400	5%	41270	21667	21667	113750	6191	204,544
102,400	5%	5120	2688	2688	14112	768	25,376
91,000	5%	4550	2389	2389	12541	683	22,551
77,800	5%	3890	2042	2042	10722	584	19,280
533,600	5%	26680	14007	14007	73537	4002	132,233
-							
399,800	5%	19990	10495	10495	55097	2999	99,075

16	Back to Refinery Feed Nozzle	piece	2
17	Catalyst Cooler	piece	1
18	CFC Caustic Wash Contactor	piece	1
19	Fibrous Membrane Water Wash Contactor	piece	1
20	Fractionator	piece	1
21	LCO Stripper	piece	1
22	Primary Absorber	piece	1
23	Stripper	piece	1
24	Secondary Absorber	piece	1
25	Debutanizer	piece	1
26	LPG Amine Absorber	piece	1
27	Dry Gas Amine Absorber	piece	1
28	Fresh Catalyst Storage Hopper	piece	1
29	Equilibrium Catalyst Storage Hopper	piece	1
30	Spent catalyst storage hopper	piece	1
31	Promoter Additive Hopper	piece	1
32	Catalyst Additive Hopper	piece	1
33	Promoter Additive Drum	piece	1
34	IA Drum(1)	piece	1
35	IA Drum(2)	piece	1
36	PA Drum	piece	1
37	Orifice Chamber	piece	1
38	Critical flow nozzle	piece	1
39	Recovered catalyst hopper	piece	1
40	Water Seal	piece	1
41	Fractionator Overhead Receiver	piece	1
42	Feed Stock drum/Heavy Cycle Oil Drum	piece	2
43	Seal Oil Drum	piece	1
44	High Pressure Receiver	piece	1
45	Debutanizer Receiver	piece	1
46	Dry Gas Separator	piece	1

5%	3,829,400	191470	100522	100522	527739	28721	948,973
5%	442,200	22110	11608	11608	60941	3317	109,583
5%	442,200	22110	11608	11608	60941	3317	109,583
5%	4,245,200	212260	111437	111437	585042	31839	1,052,014
5%	312,400	15620	8201	8201	43053	2343	77,417
5%	1,273,600	63680	33432	33432	175518	9552	315,614
5%	2,093,000	104650	54941	54941	288442	15698	518,672
5%	513,000	25650	13466	13466	70698	3848	127,128
5%	2,553,000	127650	67016	67016	351835	19148	632,665
5%	970,400	48520	25473	25473	133733	7278	240,477
5%	993,600	49680	26082	26082	136931	7452	246,227
5%	92,400	4620	2426	2426	12734	693	22,898
5%	93,800	4690	2462	2462	12927	704	23,245
5%	936,400	46820	24581	24581	129048	7023	232,052
5%	700	35	18	18	96	5	173
10%	60	6	2	2	9	0	18
20%	200	40	6	6	32	2	85
20%	18,200	3640	546	546	2867	137	7,735
20%	18,200	3640	546	546	2867	137	7,735
20%	18,200	3640	546	546	2867	137	7,735
5%	75,200	3760	1974	1974	10364	564	18,636
5%	24,000	1200	630	630	3308	180	5,948
5%	15,800	790	415	415	2177	119	3,915
0%	79,800	0	1995	1995	10474	599	15,062
5%	41,200	2060	1082	1082	5678	309	10,210
5%	89,400	4470	2347	2347	12320	671	22,154
20%	8,600	1720	258	258	1355	65	3,655
5%	91,400	4570	2399	2399	12596	686	22,650
5%	40,600	2030	1066	1066	5595	305	10,061
5%	3,400	170	89	89	469	26	843



47	Compressor Interstage suction Drum	piece	1	
48	Flare gas condensate receiver	piece	1	
49	Flare gas separator drum	piece	1	
50	Catalyst Cooler Steam Drum	piece	1	
51	Steam Drum	piece	2	
52	Blow-Down Drum	piece	1	
53	Water Seal	piece	1	
54	Water Seal	piece	1	
55	Steam Dehydrator	piece	1	
56	Nitrogen Drum	piece	1	
57	Continuous Blow-Down Drum	piece	1	
58	Steam Dehydrator	piece	1	
59	Hot Water Drum	piece	1	
60	Dissolved Caustic Tank	piece	1	
61	Dilute Caustic Tank	piece	1	
62	Spent Caustic Tank	piece	1	
63	Water Seal	piece	1	
64	Dry Gas Separator	piece	1	
65	Caustic Wash Separator	piece	1	
66	Water Wash Separator	piece	1	
67	LPG Dehydration Coalescer	piece	1	
68	Fresh Catalyst Hopper Cyclone	piece	1	
69	Equilibrium Catalyst Hopper Cyclone	piece	1	
70	Spent Catalyst Hopper Cyclone	piece	1	
71	Third Stage Separator	piece	1	
72	Fourth Stage Separator	piece	1	
73	External Heater Immersion sampling Cooler	piece	1	
74	Oil slurry steam production steam water sampling cooler	piece	2	
75	Waste heat boiler steam water sampling cooler	piece	1	
76	Deaerator	piece	1	

1,000	5%	50	26	26	138	8	248
5,000	5%	250	131	131	689	38	1,239
40,600	20%	8120	1218	1218	6395	305	17,255
96,800	20%	19360	2904	2904	15246	726	41,140
8,200	20%	1640	246	246	1292	62	3,485
5,600	20%	1120	168	168	882	42	2,380
72,600	0%	0	1815	1815	9529	545	13,703
47,400	0%	0	1185	1185	6221	356	8,947
2,000	5%	100	53	53	276	15	496
5,800	20%	1160	174	174	914	44	2,465
4,200	20%	840	126	126	662	32	1,785
3,400	5%	170	89	89	469	26	843
7,000	20%	1400	210	210	1103	53	2,975
3,800	20%	760	114	114	599	29	1,615
13,200	20%	2640	396	396	2079	99	5,610
13,200	20%	2640	396	396	2079	99	5,610
600	0%	0	15	15	79	5	113
18,200	5%	910	478	478	2508	137	4,510
40,800	5%	2040	1071	1071	5623	306	10,111
40,800	5%	2040	1071	1071	5623	306	10,111
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
140,600	5%	7030	3691	3691	19376	1055	34,842
14,000	5%	700	368	368	1929	105	3,469
1,000	5%	50	26	26	138	8	248
1,000	5%	50	26	26	138	8	248
1,000	5%	50	26	26	138	8	248
33,600	5%	1680	882	882	4631	252	8,327

77	Fractionator Overhead-Hot WaterExchangers	piece	4	
78	Fractionator Overhead Condenser	piece	4	
79	Fractionator Top Pumparound-Hot Media Water Exchangers	piece	2	
80	Slurry Pumparound-Fractionator 1st Mid Pumparound Exchangers	piece	1	
81	LCO-Feed Stock Exchangers	piece	1	
82	LCO-Sponge Oil Exchanger	piece	1	
83	LCO-Hot WaterExchangers	piece	2	
84	Lean Oil Cooler	piece	1	
85	1st Mid Pumparound -Hot WaterExchangers	piece	1	
86	Heavy cycle oil-Feed Stock Exchangers	piece	1	
87	Slurry Pumparound -Feed Stock Exchangers	piece	1	
88	Slurry Steam Generation	piece	2	
89	Slurry Product-Hot WaterExchangers	piece	4	
90	Rich Gas Cooler	piece	2	
91	Primary Absorber Upper Pumparound Cooler	piece	2	
92	Primary Absorber Lower Pumparound Cooler	piece	2	
93	Stripper Mid Reboiler	piece	1	
94	Stabilized Gasoline-Demineralized Water Exchangers	piece	2	
95	Stripper Reboiler	piece	1	
96	Debutanizer Feed Exchanger	piece	1	
97	Debutanizer Reboiler	piece	1	
98	Debutanizer Overhead Cooler	piece	4	
99	Stabilized Gasoline Cooler	piece	2	
100	Compressor Interstage Cooler	piece	1	
101	Hot Water -CWS Exchanger	piece	1	

169,800	5%	8490	4457	4457	23401	1274	42,079
77,400	5%	3870	2032	2032	10667	581	19,181
44,200	5%	2210	1160	1160	6091	332	10,953
189,000	5%	9450	4961	4961	26047	1418	46,837
34,000	5%	1700	893	893	4686	255	8,426
80,000	5%	4000	2100	2100	11025	600	19,825
166,600	5%	8330	4373	4373	22960	1250	41,286
142,200	5%	7110	3733	3733	19597	1067	35,239
124,000	5%	6200	3255	3255	17089	930	30,729
6,000	5%	300	158	158	827	45	1,487
47,400	5%	2370	1244	1244	6532	356	11,746
264,000	5%	13200	6930	6930	36383	1980	65,423
15,400	5%	770	404	404	2122	116	3,816
15,800	5%	790	415	415	2177	119	3,915
76,400	5%	3820	2006	2006	10529	573	18,933
18,200	5%	910	478	478	2508	137	4,510
17,400	5%	870	457	457	2398	131	4,312
27,200	5%	1360	714	714	3749	204	6,741
27,200	5%	1360	714	714	3749	204	6,741
38,600	5%	1930	1013	1013	5320	290	9,566
22,400	5%	1120	588	588	3087	168	5,551
33,200	5%	1660	872	872	4575	249	8,227
109,600	5%	5480	2877	2877	15104	822	27,160
16,600	5%	830	436	436	2288	125	4,114
28,800	5%	1440	756	756	3969	216	7,137

102	Feed water Preheater	piece	1	
103	Hot Water-Demineralized Water Exchangers	piece	2	
104	Fuel Gas-Hot Water Exchanger	piece	1	
105	Fractionator Overhead Air Cooler	piece	8	
106	LCO Air Cooler	piece	2	
107	Fractionator Top Pumparound Air Cooler	piece	2	
108	Rich Gas Air Cooler	piece	2	
109	Debutanizer Overhead Air Cooler	piece	4	
110	Stabilized Gasoline Air Cooler	piece	2	
111	Heat medium water air cooler	piece	8	
112	Liquid Ring Vacuum Pump	piece	1	
113	Feedstock Pump	piece	2	
114	Raw Gasoline Pump	piece	2	
115	Fractionator Top Pumparound Pump	piece	2	
116	LCO Pump	piece	2	
117	LCO Circulation Pump	piece	2	
118	Fractionator Mid Pumparound Pump	piece	2	
119	Heavy Cycle Oil Pump	piece	2	
120	Slurry Pumparound Pump	piece	2	
121	Sour Water Pump	piece	2	
122	Seal Oil Pump	piece	2	
123	desorption column feed pump	piece	2	
124	Primary Absorber Upper Pumparound Cooler	piece	2	
125	Primary Absorber Lower Pumparound Cooler	piece	2	
126	Primary Absorber bottom pump	piece	2	
127	Stabilizer feed pump	piece	2	
128	Stabilizer petrol pump	piece	2	
129	Stabilizer overhead reflux pump	piece	2	

16,200	5%	810	425	425	2233	122	4,015
7,800	5%	390	205	205	1075	59	1,933
16,600	5%	830	436	436	2288	125	4,114
536,200	5%	26810	14075	14075	73895	4022	132,877
106,400	5%	5320	2793	2793	14663	798	26,367
134,000	5%	6700	3518	3518	18467	1005	33,207
106,800	5%	5340	2804	2804	14718	801	26,466
275,600	5%	13780	7235	7235	37981	2067	68,297
110,000	5%	5500	2888	2888	15159	825	27,259
538,200	5%	26910	14128	14128	74171	4037	133,373
650,000	5%	32500	17063	17063	89578	4875	161,078
217,200	5%	10860	5702	5702	29933	1629	53,825
104,000	5%	5200	2730	2730	14333	780	25,773
126,400	5%	6320	3318	3318	17420	948	31,324
120,000	5%	6000	3150	3150	16538	900	29,738
112,000	5%	5600	2940	2940	15435	840	27,755
164,400	5%	8220	4316	4316	22656	1233	40,740
250,000	5%	12500	6563	6563	34453	1875	61,953
258,000	5%	12900	6773	6773	35556	1935	63,936
132,000	5%	6600	3465	3465	18191	990	32,711
113,200	5%	5660	2972	2972	15600	849	28,052
136,000	5%	6800	3570	3570	18743	1020	33,703
156,000	5%	7800	4095	4095	21499	1170	38,659
166,400	5%	8320	4368	4368	22932	1248	41,236
208,000	5%	10400	5460	5460	28665	1560	51,545
246,600	5%	12330	6473	6473	33985	1850	61,111
273,000	5%	13650	7166	7166	37623	2048	67,653
286,600	5%	14330	7523	7523	39497	2150	71,023

130	Condensate pump at the outlet of the first stage of the air compressor	piece	2	
131	Hot Water Pumparound Pump	piece	2	
132	Medium pressure boiler Feed Water Pump	piece	3	
133	Caustic Pump	piece	2	
134	Caustic Booster Pump	piece	1	
135	Caustic Wash Pump	piece	2	
136	Demineralized Water Pump	piece	1	
137	Water Wash Pump	piece	2	
138	Air Blower	piece	1	
139	Expander	piece	1	
140	Motor	piece	1	
141	Booster	piece	2	
142	Booster Motor	piece	2	
143	Rich Gas Compressor	piece	1	
144	Steam Turbine	piece	1	
145	Fresh Catalyst Storage Hopper Muffler	piece	1	
146	Spent catalyst storage hopper Muffler	piece	1	
147	Main fan inlet muffler	piece	1	
148	Main fan outlet muffler	piece	1	
149	Main fan outlet muffler	piece	1	
150	Fractionator oil-gas pipeline muffler	piece	1	
151	Settler muffler	piece	1	
152	Booster outlet muffler	piece	1	
153	Catalyst Cooler muffler	piece	1	
154	MP internal superheater steam blow-out Muffler	piece	1	
155	LP internal superheater steam blow-out Muffler	piece	1	
156	Steam Turbine inlet muffler	piece	1	

93,200	5%	4660	2447	2447	12844	699	23,096
278,000	5%	13900	7298	7298	38312	2085	68,892
308,000	5%	15400	8085	8085	42446	2310	76,326
104,000	5%	5200	2730	2730	14333	780	25,773
86,600	5%	4330	2273	2273	11935	650	21,461
112,400	5%	5620	2951	2951	15490	843	27,854
162,000	5%	8100	4253	4253	22326	1215	40,146
164,400	5%	8220	4316	4316	22656	1233	40,740
6,875,000	5%	343750	180469	180469	947461	51563	1,703,711
5,380,000	5%	269000	141225	141225	741431	40350	1,333,231
2,668,400	5%	133420	70046	70046	367739	20013	661,263
1,640,000	5%	82000	43050	43050	226013	12300	406,413
1,282,200	5%	64110	33658	33658	176703	9617	317,745
5,364,600	20%	1072920	160938	160938	844925	40235	2,279,955
4,874,400	5%	243720	0	0	0	36558	280,278
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12
200	5%	10	0	0	0	2	12

157	Steam Turbine outlet muffler	piece	1	
158	Catalyst Cooler Steam Generator muffler	piece	1	
159	Slurry Steam Generator muffler	piece	1	
160	Residual Boiler superheated steam muffler	piece	1	
161	Low-pressure Steam Exhaust Muffler	piece	1	
162	Regenerative Gas Sampler	piece	1	
163	Raw material oil sampling cooler	piece	1	
164	Crude gasoline sampler	piece	1	
165	Rich gas sampler	piece	1	
166	Fractionator Top Pumparound sampling cooler	piece	1	
167	Fractionator Mid Pumparound oil sampling cooler	piece	1	
168	Slurry Pumparound sampling cooler	piece	1	
169	Light diesel sampler	piece	1	
170	Heavy Cycle Oil sampling cooler	piece	1	
171	Acid water sampler	piece	1	
172	Dry gas sampler	piece	1	
173	Stabilized Gasoline sampler	piece	1	
174	LPG sampler	piece	1	
175	Deethane gasoline sampling cooler	piece	1	
176	Purified fuel gas sampler	piece	1	
177	Lye Gas sampler	piece	1	
178	Rich amine sampler	piece	1	
179	Refined liquefied gas sampler	piece	1	
180	LPG filter	piece	1	
181	Demineralized water filter	piece	1	
182	lye filter	piece	1	
183	flame arrestor	piece	1	
184	Oil Slurry Desolidification Facility	set	1	

200	5%	10	0	0	0	0	0	0	2	12
200	5%	10	0	0	0	0	0	0	2	12
200	5%	10	0	0	0	0	0	0	2	12
200	5%	10	0	0	0	0	0	0	2	12
200	5%	10	0	0	0	0	0	0	2	12
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
200	5%	10	5	5	28	28	2	2	50	50
1,000	5%	50	26	26	138	26	8	248		
200	5%	10	5	5	28	28	2	50		
200	5%	10	5	5	28	28	2	50		
200	5%	10	5	5	28	28	2	50		
200	5%	10	5	5	28	28	2	50		
200	5%	10	5	5	28	28	2	50		
200	5%	10	5	5	28	28	2	50		
200	5%	10	5	5	28	28	2	50		
400	5%	20	11	11	55	11	3	99		
400	5%	20	11	11	55	11	3	99		
400	5%	20	11	11	55	11	3	99		
7,000	5%	350	184	184	965	184	53	1,735		
1,625,000	5%	81250	0	0	0	0	12188	93,438		

185	Fouling Inhibitor device	piece	1	
186	Combination Dosing Machine	piece	1	
187	Deactivator Ejector device	piece	1	
188	steam ejector	piece	1	
189	Feed Stock-Heavy Cycle Oil mixer	piece	1	
190	Desuperheater	piece	1	
191	Equipment Insulation Materials	m <sup>3</sup>	560	
192	Equipment anti-corrosion materials	ton	2.47	
193	Metal Structure Platform Ladder	Ton		
194	Lubricating oil filter car	piece	2	
195	Electric Bridge Crane	piece	1	
196	Explosion-proof Electric Bridge Crane	piece	1	
197	Explosion-proof electric hoist for supercharger maintenance	piece	1	
198	explosion-proof electric hoist for catalyst	piece	1	
199	Air Blower Outlet Check Valve	piece	1	
200	Spare Air Blower Outlet Check Valve	piece	1	
201	Booster Discharge Special Check Valve	piece	1	
202	Expander Inlet Gate Valve	piece	1	
203	Expander Inlet Butterfly Valve	piece	1	
204	Spent Catalyst Slide Valve	piece	1	
205	First Regenerated Catalyst Slide Valve	piece	1	
206	Flue Gas Slide Valve	piece	1	
207	Flue Gas Butterfly Valve	piece	1	
208	Flue Gas Butterfly Valve	piece	1	
209	Flue Gas Damper Valve	piece	1	
210	Flue Gas Butterfly Valve	piece	1	
211	Second Regenerated Catalyst Slide Valve	piece	1	

5%	10,400	520	0	0	0	0	0	0	78	598
5%	12,000	600	0	0	0	0	0	0	90	690
5%	10,400	520	0	0	0	0	0	0	78	598
5%	26,600	1330	0	0	0	0	0	0	200	1,530
5%	800	40	0	0	0	0	0	0	6	46
5%	800	40	0	0	0	0	0	0	6	46
20%	675,200	135040	20256	20256	106344	5064	286,960			
20%	19,200	3840	576	576	3024	144	8,160			
20%	484,600	96920	14538	14538	76325	3635	205,955			
5%	400	20	11	11	55	3	99			
5%	24,000	1200	630	630	3308	180	5,948			
5%	30,000	1500	0	0	0	225	1,725			
5%	2,400	120	0	0	0	18	138			
5%	2,400	120	0	0	0	18	138			
10%	53,200	5320	1463	1463	7681	399	16,326			
10%	37,600	3760	1034	1034	5429	282	11,539			
10%	53,200	5320	1463	1463	7681	399	16,326			
10%	257,600	25760	7084	7084	37191	1932	79,051			
10%	284,400	28440	7821	7821	41060	2133	87,275			
10%	720,000	72000	19800	19800	103950	5400	220,950			
10%	760,000	76000	20900	20900	109725	5700	233,225			
10%	908,600	90860	24987	24987	131179	6815	278,827			
10%	184,000	18400	5060	5060	26565	1380	56,465			
10%	184,000	18400	5060	5060	26565	1380	56,465			
10%	92,000	9200	2530	2530	13283	690	28,233			
10%	196,400	19640	5401	5401	28355	1473	60,270			
10%	760,000	76000	20900	20900	109725	5700	233,225			

212	Catalyst Cooler Slide Valve	piece	1
213	Recirculation Catalyst Slide Valve	piece	1
214	Fired Air Heater	piece	1
215	Waste Heat Boiler	piece	1
216	Stack	piece	1
217	Carbon Steel Pipe	meter	34550
218	Alloy Steel Pipe	meter	1890
219	stainless steel pipe	meter	1095
220	process valve	piece	5445
221	pipe fittings	piece	17888
222	Pipe Gasket	piece	10481
223	Pipe flange	piece	11537
224	screw bolt	set	68216
225	Pipe support hanger	ton	12.55
226	Pipe Expansion Joint	piece	19
227	Metal Hose	piece	160
228	safety valve	piece	46
229	Spring support hanger	piece	276
230	Pipe Insulation Materials	m <sup>3</sup>	850
231	Pipe Anti-corrosion Materials	ton	2.88
232	Pipe electrostatic grounding	place	90
233	Electrical distribution box	piece	6
234	electrical operating column	piece	108
235	Electrical bridge	meter	1700
236	Electrical cable	meter	42855
237	Lighting distribution box	piece	9
238	lighting fixtures	set	834
239	lighting wire	meter	15000
240	Double tube energy-saving fluorescent lamps	set	30
241	Lightning protection ground electrode	piece	52
242	Lightning protection ground wire	meter	8605
243	regulating valve	piece	89
244	Pneumatic switch valve	piece	18

720,000	10%	72000	19800	19800	19800	103950	5400	220,950
500,000	10%	50000	13750	13750	13750	72188	3750	153,438
203,200	5%	10160	5334	5334	28004	1524	50,356	
2,656,400	5%	132820	69731	69731	366085	19923	658,289	
80,600	5%	4030	2116	2116	11108	605	19,974	
144,830	5%	7242	3802	3802	19959	1086	35,891	
49,060	5%	2453	1288	1288	6761	368	12,158	
45,020	5%	2251	1182	1182	6204	338	11,157	
222,010	10%	22201	6105	6105	32053	1665	68,129	
13,980	20%	2796	419	419	2202	105	5,942	
13,100	5%	655	344	344	1805	98	3,246	
10,820	20%	2164	325	325	1704	81	4,599	
53,290	20%	10658	1599	1599	8393	400	22,648	
25,400	20%	5080	762	762	4001	191	10,795	
1,009,400	20%	201880	30282	30282	158981	7571	428,995	
250,000	20%	50000	7500	7500	39375	1875	106,250	
262,000	10%	26200	7205	7205	37826	1965	80,401	
119,600	20%	23920	3588	3588	18837	897	50,830	
1,024,800	20%	204960	30744	30744	161406	7686	435,540	
2,200	20%	440	66	66	347	17	935	
600	20%	120	18	18	95	5	255	
22,800	5%	1140	599	599	3142	171	5,650	
204,000	5%	10200	5355	5355	28114	1530	50,554	
47,200	5%	2360	1239	1239	6505	354	11,697	
1,195,000	20%	239000	35850	35850	188213	8963	507,875	
34,200	20%	6840	1026	1026	5387	257	14,535	
477,200	20%	95440	14316	14316	75159	3579	202,810	
23,400	20%	4680	702	702	3686	176	9,945	
1,400	20%	280	42	42	221	11	595	
12,600	20%	2520	378	378	1985	95	5,355	
239,000	20%	47800	7170	7170	37643	1793	101,575	
1,103,600	10%	110360	30349	30349	159332	8277	338,667	
180,000	10%	18000	4950	4950	25988	1350	55,238	

245	switch button	piece	4																	
246	Laser detection system	set	1																	
247	Combustible and toxic gas detectors	piece	29																	
248	safety fence	piece	553																	
249	Signal isolator	piece	48																	
250	Throttling device	piece	82																	
251	wedge flowmeter	piece	12																	
252	Velocity Tube Flowmeter	piece	2																	
253	Vortex flowmeter	piece	3																	
254	Electromagnetic Flowmeter	piece	3																	
255	Ultrasonic flowmeter	piece	1																	
256	Positive Displacement Flowmeter	piece	3																	
257	Coriolis Mass Flow Meter	piece	3																	
258	Multi-channel signal acquisition and inspection system	set	1																	
259	Bimetallic thermometer	piece	82																	
260	Armored Temperature Elements	piece	122																	
261	Temperature Transmitter	piece	4																	
262	pressure gauge	piece	380																	
263	Pressure Transmitter	piece	75																	
264	Differential pressure transmitter	piece	16																	
265	Instrumentation pipeline	meter	18624																	
266	Instrument Fittings	piece	7927																	
267	Instrument valve	piece	1498																	
268	Instrument bolts	set	5726																	
269	Instrument section steel	meter	2697																	
270	Instrument cable tray	meter	523																	
271	Instrument cable	meter	108640																	
272	water supply and drainage pipeline	meter	2659																	
273	Water supply and drainage valve	piece	27																	
274	Water supply and drainage anti-corrosion and insulation materials	ton	3.09																	
275	Air Conditioning System	set	1																	
				400	20%	80	12	12	12	63	3	170								
			50,000	5%	2500	1313	1313	1313	6891	375	12,391									
			84,000	5%	4200	2205	2205	2205	11576	630	20,816									
			221,200	5%	11060	5807	5807	5807	30484	1659	54,816									
			19,200	5%	960	504	504	504	2646	144	4,758									
			164,000	5%	8200	4305	4305	4305	22601	1230	40,641									
			120,000	5%	6000	3150	3150	3150	16538	900	29,738									
			20,000	5%	1000	525	525	525	2756	150	4,956									
			6,000	5%	300	158	158	158	827	45	1,487									
			9,000	5%	450	236	236	236	1240	68	2,230									
			4,000	5%	200	105	105	105	551	30	991									
			72,000	5%	3600	1890	1890	1890	9923	540	17,843									
			120,000	5%	6000	3150	3150	3150	16538	900	29,738									
			4,000	5%	200	105	105	105	551	30	991									
			41,000	5%	2050	1076	1076	1076	5650	308	10,160									
			36,600	5%	1830	961	961	961	5044	275	9,070									
			8,000	5%	400	210	210	210	1103	60	1,983									
			190,000	5%	9500	4988	4988	4988	26184	1425	47,084									
			150,000	5%	7500	3938	3938	3938	20672	1125	37,172									
			32,000	5%	1600	840	840	840	4410	240	7,930									
			200,400	5%	10020	5261	5261	5261	27618	1503	49,662									
			49,600	5%	2480	1302	1302	1302	6836	372	12,292									
			688,800	10%	68880	18942	18942	18942	99446	5166	211,376									
			17,800	20%	3560	534	534	534	2804	134	7,565									
			42,200	20%	8440	1266	1266	1266	6647	317	17,935									
			14,600	20%	2920	438	438	438	2300	110	6,205									
			188,000	20%	37600	5640	5640	5640	29610	1410	79,900									
			247,200	20%	49440	7416	7416	7416	38934	1854	105,060									
			36,400	10%	3640	1001	1001	1001	5255	273	11,170									
			2,400	10%	240	66	66	66	347	18	737									
			4,600	20%	920	138	138	138	725	35	1,955									



276	fresh catalyst	ton	1200
277	Equilibrium catalyst	ton	800
278	Oil slurry scale inhibitor	ton	30
279	metal passivator	ton	30
280	Octane booster	ton	12
281	CO additive for combustion	ton	8
282	Desulfurization solvent	ton	24
283	Oil Slurry Desolidification System	set	1
284	fire hydrant	piece	13
285	Fire monitors	piece	13
286	fire hydrant Box	piece	24
287	Portable dry powder fire extinguisher	piece	258
288	fire extinguisher box	piece	129
289	Cart Type Dry Powder Fire Extinguisher	piece	6
290	eye washer	piece	2
291	Lubricating oil	ton	
<b>gasoline hydrotreating unit</b>			
1	Steel Structure	ton	704
2	SHU REACTOR	piece	2
3	FIRST STAGE HDS REACTOR	piece	1
4	TWO-STAGE HDS REACTOR	piece	1
5	TWO-STAGE FIRST HDS REACTOR	piece	1
6	FRACTIONATOR	piece	1
7	AMINE ABSORBER	piece	1
8	STABILIZER	piece	1
9	TWO-STAGE STABILIZER	piece	1
10	NEW HYDROGEN SEPARATOR	piece	1
11	FCC GASOLINE SURGE DRUM	piece	1
12	FRACTIONATOR REFLUX DRUM	piece	1
13	PREHEATER OUTLET CONDENSATE TANK	piece	1
14	Fractionation tower reboiler outlet condensate tank	piece	1

11,250,000	10%	1125000	309375	309375	1624219	84375	3,452,344
1,500,000	10%	150000	41250	41250	216563	11250	460,313
281,200	5%	14060	7382	7382	38753	2109	69,685
234,400	5%	11720	6153	6153	32303	1758	58,087
375,000	5%	18750	9844	9844	51680	2813	92,930
200,000	5%	10000	5250	5250	27563	1500	49,563
67,600	5%	3380	1775	1775	9316	507	16,752
1,625,600	5%	81280	42672	42672	224028	12192	402,844
6,600	5%	330	173	173	910	50	1,636
11,400	5%	570	299	299	1571	86	2,825
48,000	5%	2400	1260	1260	6615	360	11,895
5,800	5%	290	152	152	799	44	1,437
1,000	5%	50	26	26	138	8	248
22,800	5%	1140	599	599	3142	171	5,650
13,200	20%	2640	396	396	2079	99	5,610
834,400	20%	166880	25032	25032	131418	6258	354,620
739,400	5%	36970	0	0	0	5546	42,516
619,800	5%	30990	0	0	0	4649	35,639
316,800	5%	15840	0	0	0	2376	18,216
706,000	5%	35300	0	0	0	5295	40,595
752,000	5%	37600	19740	19740	103635	5640	186,355
225,800	5%	11290	5927	5927	31118	1694	55,956
413,200	5%	20660	10847	10847	56944	3099	102,396
373,000	5%	18650	9791	9791	51404	2798	92,434
7,200	5%	360	189	189	992	54	1,784
220,000	20%	44000	6600	6600	34650	1650	93,500
66,800	20%	13360	2004	2004	10521	501	28,390
14,400	20%	2880	432	432	2268	108	6,120
22,600	0%	0	565	565	2966	170	4,266

15	HDS EFFLUENT SEPARATOR DRUM	piece	1	
16	AMINE ABSORBER SUCTION DRUM	piece	1	
17	RECYCLE GAS COMPRESSOR SUCTION DRUM	piece	1	
18	STABILIZER REFLUX DRUM	piece	1	
19	LEAN AMINE Buffer tank	piece	1	
20	RELIEF GAS-LIQUID SEPARATOR	piece	1	
21	UNDERGROUND DIRTY OIL TANK	piece	1	
22	LP STEAM SEPARATOR	piece	1	
23	IA TANK	piece	1	
24	FUEL GAS KO DRUM	piece	1	
25	UNDERGROUND AMINE TANK	piece	1	
26	DMDS DRUM	piece	1	
27	MP STEAM SEPARATOR	piece	1	
28	NITROGEN BUFFER DRUM	piece	1	
29	MP CONDENSATE FLASH VAPORIZATION TANK	piece	1	
30	LP CONDENSATE FLASH VAPORIZATION TANK	piece	1	
31	TWO-STAGE HDS EFFLUENT SEPARATOR	piece	1	
32	SECOND STAGE STABILIZER OVERHEAD REFLUX DRUM	piece	1	
33	NEW HYDROGEN COMPRESSOR RETURN COOLER	piece	1	
34	SHU REACTORS FEED/HDS EFFLUENT EXCHANGER	piece	1	
35	SHU REACTORS FEED/EFFLUENT EXCHANGER	piece	1	
36	SHU REACTORS FEED PREHEATER	piece	1	
37	FRACTIONATOR GAS CONDENSER	piece	1	
38	FRACTIONATOR REBOILER	piece	1	
39	LCN TRIM COOLER	piece	1	
40	SHU PREHEATER	piece	1	
41	FCC GASOLINE RETURN COOLER	piece	1	

169,800	20%	33960	5094	5094	26744	1274	72,165
17,400	20%	3480	522	522	2741	131	7,395
71,000	20%	14200	2130	2130	11183	533	30,175
97,800	20%	19560	2934	2934	15404	734	41,565
22,600	20%	4520	678	678	3560	170	9,605
80,200	5%	4010	2105	2105	11053	602	19,875
61,800	20%	12360	1854	1854	9734	464	26,265
1,600	5%	80	42	42	221	12	397
23,600	20%	4720	708	708	3717	177	10,030
17,400	20%	3480	522	522	2741	131	7,395
31,800	20%	6360	954	954	5009	239	13,515
23,600	20%	4720	708	708	3717	177	10,030
7,800	5%	390	205	205	1075	59	1,933
12,400	20%	2480	372	372	1953	93	5,270
33,000	20%	6600	990	990	5198	248	14,025
30,800	20%	6160	924	924	4851	231	13,090
169,800	5%	8490	4457	4457	23401	1274	42,079
92,600	20%	18520	2778	2778	14585	695	39,355
34,600	5%	1730	908	908	4768	260	8,574
162,200	5%	8110	4258	4258	22353	1217	40,195
157,800	5%	7890	4142	4142	21747	1184	39,105
86,600	5%	4330	2273	2273	11935	650	21,461
26,000	5%	1300	683	683	3583	195	6,443
307,000	5%	15350	8059	8059	42308	2303	76,078
60,600	5%	3030	1591	1591	8351	455	15,017
30,200	5%	1510	793	793	4162	227	7,484
90,800	5%	4540	2384	2384	12513	681	22,501

42	SECOND STAGE HDS FEED/EFFLUENT EXCHANGER(I)	piece	4
43	SECOND STAGE HDS FEED/EFFLUENT EXCHANGER	piece	1
44	SECOND STAGE STABILIZER FEED/BOTTOMS EXCHANGERS	piece	2
45	STABILIZER REBOILER	piece	1
46	HCN TRIM COOLER	piece	1
47	LEAN AMINE HEATER	piece	1
48	SECOND STAGE HDS FEED EXCHANGER(II)	piece	4
49	SECOND STAGE HDS FEED/EFFLUENT EXCHANGER(II)	piece	2
50	STABILIZER FEED/BOTTOMS EXCHANGERS	piece	2
51	TWO-STAGE STABILIZER REBOILER	piece	1
52	FRACTIONATOR OVERHEAD AIR CONDENSER	piece	4
53	LCN AIR COOLER	piece	2
54	HDS EFFLUENT AIR CONDENSER	piece	4
55	STABILIZER OVERHEAD AIR CONDENSER	piece	1
56	HCN AIR COOLER	piece	2
57	TWO-STAGE HDS EFFLUENT AIR CONDENSER	piece	4
58	TWO-STAGE STABILIZER OVERHEAD AIR CONDENSER	piece	1
59	FCC GASOLINE PUMPS	piece	2
60	FRACTIONATOR REFLUX PUMPS	piece	2
61	HDS FEED PUMPS	piece	2
62	INJECTION WATER CIRCULATION PUMPS	piece	2
63	HDS QUENCH OIL PUMPS	piece	2
64	STABILIZER REFLUX PUMPS	piece	2
65	HCN PUMPS	piece	2
66	LEAN AMINE PUMP	piece	2

5%	458,400	22920	12033	12033	63173	3438	113,597
5%	112,400	5620	2951	2951	15490	843	27,854
5%	164,400	8220	4316	4316	22656	1233	40,740
5%	127,600	6380	3350	3350	17585	957	31,621
5%	60,600	3030	1591	1591	8351	455	15,017
5%	28,200	1410	740	740	3886	212	6,988
5%	605,600	30280	15897	15897	83459	4542	150,075
5%	2,335,600	116780	61310	61310	321875	17517	578,791
5%	164,400	8220	4316	4316	22656	1233	40,740
5%	136,200	6810	3575	3575	18770	1022	33,752
5%	834,000	41700	21893	21893	114936	6255	206,676
5%	317,200	15860	8327	8327	43714	2379	78,606
5%	632,600	31630	16606	16606	87180	4745	156,766
5%	183,600	9180	4820	4820	25302	1377	45,498
5%	338,600	16930	8888	8888	46663	2540	83,909
5%	303,000	15150	7954	7954	41757	2273	75,087
5%	374,200	18710	9823	9823	51569	2807	92,731
5%	284,400	14220	7466	7466	39194	2133	70,478
5%	88,000	4400	2310	2310	12128	660	21,808
5%	244,200	12210	6410	6410	33654	1832	60,516
5%	169,000	8450	4436	4436	23290	1268	41,880
5%	266,600	13330	6998	6998	36741	2000	66,067
5%	84,000	4200	2205	2205	11576	630	20,816
5%	56,000	2800	1470	1470	7718	420	13,878
5%	193,600	9680	5082	5082	26681	1452	47,977

67	STABILIZER ACID WATER PUMP	piece	2																	
68	LIGHT DIRTY OIL PUMP	piece	2																	
69	DRAIN OIL PUMPS	piece	2																	
70	RICH AMINE PUMP	piece	2																	
71	DMDS PUMPS	piece	2																	
72	Vulcanizing agent injection pump	piece	2																	
73	CONDENSATE WATER PUMP	piece	2																	
74	TWO-STAGE HDS FEED PUMPS	piece	2																	
75	SECOND STAGE HDS QUENCH OIL PUMP	piece	2																	
76	SECOND STAGE STABILIZER REFLUX PUMP	piece	2																	
77	TWO-STAGE HCN PUMPS	piece	2																	
78	NEW HYDROGEN COMPRESSOR	piece	2																	
79	RECYCLE GAS COMPRESSOR	piece	2																	
80	RECYCLE GAS COMPRESSOR	piece	1																	
81	crane	piece	1																	
82	FIRST STAGE HDS HEATER	piece	1																	
83	TWO-STAGE HDS HEATER MAIN BURNER	piece	1																	
84	Waste heat recovery system	set	1																	
85	evacuator muffler	piece	1																	
86	A main flame arrester of the anti-heating furnace	piece	1																	
87	One anti-heating furnace long light flame arrester	piece	1																	
88	Flame arrester for the main burner of the secondary reheating furnace	piece	1																	
89	Two-reverse heating furnace long light flame arrester	piece	1																	
90	Raw oil sampler	piece	1																	
91	New hydrogen sampler	piece	1																	
92	Pre-reverse feed sampler	piece	1																	
93	Pre-reaction product sampler	piece	1																	

104,800	5%	5240	2751	2751	14443	786	25,971
16,000	5%	800	420	420	2205	120	3,965
16,000	5%	800	420	420	2205	120	3,965
252,000	5%	12600	6615	6615	34729	1890	62,449
65,000	5%	3250	1706	1706	8958	488	16,108
29,000	5%	1450	761	761	3997	218	7,187
24,000	5%	1200	630	630	3308	180	5,948
266,600	5%	13330	6998	6998	36741	2000	66,067
266,600	5%	13330	6998	6998	36741	2000	66,067
84,000	5%	4200	2205	2205	11576	630	20,816
56,000	5%	2800	1470	1470	7718	420	13,878
2,246,800	20%	449360	67404	67404	353871	16851	954,890
2,246,800	20%	449360	67404	67404	353871	16851	954,890
1,123,400	20%	224680	33702	33702	176936	8426	477,445
30,000	5%	1500	788	788	4134	225	7,434
860,000	5%	43000	22575	22575	118519	6450	213,119
1,015,600	5%	50780	26660	26660	139962	7617	251,678
169,400	5%	8470	4447	4447	23345	1271	41,979
200	5%	10	5	5	28	2	50
7,400	10%	740	204	204	1068	56	2,271
7,400	10%	740	204	204	1068	56	2,271
7,400	10%	740	204	204	1068	56	2,271
7,400	10%	740	204	204	1068	56	2,271
200	5%	10	5	5	28	2	50
200	5%	10	5	5	28	2	50
200	5%	10	5	5	28	2	50
200	5%	10	5	5	28	2	50



119	Antiknock injection mixer	piece	1
120	Equipment Insulation Materials	m <sup>3</sup>	112
121	Equipment anti-corrosion materials	ton	2.47
122	Metal Structure Platform Ladder	ton	42.3
123	Carbon Steel Pipe	meter	10902
124	Alloy Steel Pipe	meter	340
125	stainless steel pipe	meter	505
126	process valve	piece	2053
127	pipe fittings	piece	1369
128	Pipe Gasket	piece	3047
129	Pipe flange	piece	4324
130	screw bolt	set	12188
131	Spring support hanger	ton	25
132	safety valve	piece	36
133	Energy saving tube holder	ton	11.81
134	Pipe Insulation	m <sup>3</sup>	200
135	Pipeline anti-corrosion insulation	ton	2.16
136	Pipe electrostatic grounding	place	13
137	Electrical equipment distribution box	piece	2
138	Electrical equipment bridge	meter	260
139	electrical cable	meter	23392
140	Bimetallic thermometer	piece	120
141	Armor temperature original	piece	128
142	pressure gauge	piece	224
143	Pressure Transmitters	piece	44
144	Differential pressure transmitter	piece	104
145	wedge flowmeter	piece	21
146	Rotameter	piece	4
147	Vortex flowmeter	piece	4
148	Electromagnetic Flowmeter	piece	2
149	Mass Flow Meter	piece	12
150	Glass plate level gauge	piece	18
151	Magnetic level gauge	piece	8

5%	2,000	100	53	53	276	15	496
5%	202,800	10140	5324	5324	27948	1521	50,256
5%	38,400	1920	1008	1008	5292	288	9,516
5%	112,200	5610	2945	2945	15463	842	27,805
5%	45,700	2285	1200	1200	6298	343	11,325
5%	13,970	699	367	367	1925	105	3,462
5%	13,090	655	344	344	1804	98	3,244
10%	83,700	8370	2302	2302	12084	628	25,685
20%	1,070	214	32	32	169	8	455
5%	3,810	191	100	100	525	29	944
20%	4,050	810	122	122	638	30	1,721
20%	6,090	1218	183	183	959	46	2,588
20%	54,600	10920	1638	1638	8600	410	23,205
10%	181,400	18140	4989	4989	26190	1361	55,667
20%	28,000	5600	840	840	4410	210	11,900
20%	241,200	48240	7236	7236	37989	1809	102,510
20%	1,600	320	48	48	252	12	680
20%	200	40	6	6	32	2	85
20%	7,600	1520	228	228	1197	57	3,230
20%	7,200	1440	216	216	1134	54	3,060
20%	652,400	130480	19572	19572	102753	4893	277,270
5%	60,000	3000	1575	1575	8269	450	14,869
5%	38,400	1920	1008	1008	5292	288	9,516
5%	100,000	5000	2625	2625	13781	750	24,781
5%	88,000	4400	2310	2310	12128	660	21,808
5%	208,000	10400	5460	5460	28665	1560	51,545
5%	210,000	10500	5513	5513	28941	1575	52,041
5%	8,000	400	210	210	1103	60	1,983
5%	8,000	400	210	210	1103	60	1,983
5%	6,000	300	158	158	827	45	1,487
5%	120,000	6000	3150	3150	16538	900	29,738
5%	3,600	180	95	95	496	27	892
5%	1,600	80	42	42	221	12	397

152	Differential pressure level transmitter	piece	14
153	Internal float level gauge	piece	7
154	Magnetostrictive Liquid Level Gauge	piece	10
155	Combustible and toxic gas detectors	piece	43
156	Zirconia oxygen content analyzer	piece	4
157	Self-operated regulating valve	piece	2
158	Throttling device	piece	74
159	Pneumatic switch valve	piece	9
160	Electric gate valve	piece	5
161	The electromagnetic valve	set	1
162	Throttling device	meter	51
163	Instrumentation pipeline	piece	10198
164	Instrument Fittings	meter	1069
165	Instrument cable tray	meter	21608
166	Instrument cable	meter	8545
167	Lighting distribution box	piece	2
168	lighting fixtures	set	279
169	lighting wire	meter	10800
170	Lightning protection ground electrode	piece	17
171	Lightning protection ground wire	meter	286
172	fire alarm system	set	1
173	water supply and drainage pipeline	meter	840
174	Water supply and drainage valve	piece	14
175	Water supply and drainage anti-corrosion and insulation materials	ton	0.5
176	Catalyst	ton	130
177	Corrosion inhibitor	ton	15
178	Vulcanizing agent	ton	9
179	Gasoline alkaline washing fiber membrane contactor	piece	2

28,000	5%	1400	735	735	3859	210	6,939
14,000	5%	700	368	368	1929	105	3,469
100,000	5%	5000	2625	2625	13781	750	24,781
129,000	5%	6450	3386	3386	17778	968	31,968
120,000	5%	6000	3150	3150	16538	900	29,738
20,000	5%	1000	525	525	2756	150	4,956
917,600	5%	45880	24087	24087	126457	6882	227,393
90,000	10%	9000	2475	2475	12994	675	27,619
50,000	10%	5000	1375	1375	7219	375	15,344
10,000	10%	1000	275	275	1444	75	3,069
102,000	5%	5100	2678	2678	14057	765	25,277
117,400	5%	5870	3082	3082	16179	881	29,093
491,600	5%	24580	12905	12905	67749	3687	121,825
58,000	20%	11600	1740	1740	9135	435	24,650
37,400	20%	7480	1122	1122	5891	281	15,895
7,800	20%	1560	234	234	1229	59	3,315
159,600	20%	31920	4788	4788	25137	1197	67,830
301,200	20%	60240	9036	9036	47439	2259	128,010
4,000	20%	800	120	120	630	30	1,700
8,000	20%	1600	240	240	1260	60	3,400
4,000	5%	200	105	105	551	30	991
78,000	5%	3900	2048	2048	10749	585	19,329
18,800	10%	1880	517	517	2714	141	5,769
600	20%	120	18	18	95	5	255
6,500,000	10%	650000	178750	178750	938438	48750	1,994,688
600,000	5%	30000	15750	15750	82688	4500	148,688
216,000	5%	10800	5670	5670	29768	1620	53,528
216,200	5%	10810	5675	5675	29795	1622	53,577

180	Gasoline alkaline wash catalyst	ton	0.15
181	Fire hydrant	piece	6
182	Fire monitors	piece	6
183	fire hydrant Box	piece	12
184	Portable dry powder fire extinguisher	piece	58
185	Fire extinguisher box	piece	29
186	Cart Type Dry Powder Fire Extinguisher	piece	2
187	eye washer	piece	2
<b>diesel hydrotreating unit</b>			
1	Steel Structure	ton	414.51
2	1# HDS REACTOR	piece	1
3	2# HDS REACTOR	piece	1
4	Desulfurizing tower	piece	1
5	Fractionation tower	piece	1
6	Crude oil buffer tank	piece	1
7	Filtered crude oil buffer tank	piece	1
8	High pressure separation tank	piece	1
9	Low pressure separation tank	piece	1
10	NEW HYDROGEN SEPARATOR	piece	1
11	water injection tank	piece	1
12	Backwash slop tank	piece	1
13	Desulfurizing tower overhead reflux tank	piece	1
14	Fractionation tower overhead reflux tank	piece	1
15	Vulcanizing agent tank	piece	2
16	Low Pressure relief gas-liquid separator	piece	1
17	FUEL GAS KO DRUM	piece	1
18	IA Drum	piece	1
19	Low pressure steam water separation tank	piece	1
20	pour point depressant tank	piece	1

18,200	10%	1820	501	501	2628	137	5,585
3,000	5%	150	79	79	413	23	743
5,200	5%	260	137	137	717	39	1,289
24,000	5%	1200	630	630	3308	180	5,948
1,400	5%	70	37	37	193	11	347
200	5%	10	5	5	28	2	50
7,600	5%	380	200	200	1047	57	1,883
13,200	20%	2640	396	396	2079	99	5,610
491,200	20%	98240	14736	14736	77364	3684	208,760
3,609,000	5%	180450	94736	94736	497365	27068	894,355
3,268,400	5%	163420	85796	85796	450426	24513	809,950
830,000	5%	41500	21788	21788	114384	6225	205,684
1,006,200	5%	50310	26413	26413	138667	7547	249,349
634,000	20%	126800	19020	19020	99855	4755	269,450
634,000	20%	126800	19020	19020	99855	4755	269,450
513,000	20%	102600	15390	15390	80798	3848	218,025
512,600	20%	102520	15378	15378	80735	3845	217,855
189,000	5%	9450	4961	4961	26047	1418	46,837
182,000	20%	36400	5460	5460	28665	1365	77,350
204,400	20%	40880	6132	6132	32193	1533	86,870
435,200	20%	87040	13056	13056	68544	3264	184,960
414,800	20%	82960	12444	12444	65331	3111	176,290
342,000	20%	68400	10260	10260	53865	2565	145,350
388,400	5%	19420	10196	10196	53526	2913	96,250
210,000	20%	42000	6300	6300	33075	1575	89,250
137,600	20%	27520	4128	4128	21672	1032	58,480
47,000	20%	9400	1410	1410	7403	353	19,975
147,000	20%	29400	4410	4410	23153	1103	62,475



21	Anti-wear agent tank	piece	1	
22	Corrosion inhibitor tank	piece	1	
23	Reaction product-Hydrogen mixed oil heat exchanger I	piece	3	
24	Reaction product-Hydrogen mixed oil heat exchanger II	piece	1	
25	Reaction Product - Hydrogen Heat Exchanger	piece	1	
26	Reaction product - low fraction oil heat exchanger	piece	1	
27	Fresh hydrogen returns to cooler	piece	1	
28	Desulfurizing tower overhead aftercooler	piece	2	
29	Refined Diesel - Stripper Bottom Oil Heat Exchanger	piece	2	
30	Desulfurizing tower overhead aftercooler	piece	1	
31	Refined Diesel - Low Separation Oil Heat Exchanger	piece	4	
32	Refined Diesel aftercooler	piece	1	
33	Reaction product air cooler	piece	8	
34	Desulfurizing tower overhead air cooler	piece	2	
35	Fractionation tower overhead air cooler	piece	2	
36	Refined Diesel air cooler	piece	4	
37	Feedstock Pump	piece	2	
38	Reactor Feed Pump	piece	2	
39	water injection tank	piece	2	
40	Backwash slop pump	piece	2	
41	Quench oil pump	piece	2	
42	Desulfurizing tower overhead return pump	piece	2	
43	Desulfurizing tower overhead return pump	piece	2	

335,200	20%	67040	10056	10056	52794	2514	142,460
147,000	20%	29400	4410	4410	23153	1103	62,475
584,800	5%	29240	15351	15351	80593	4386	144,921
185,000	5%	9250	4856	4856	25495	1388	45,845
78,200	5%	3910	2053	2053	10777	587	19,379
175,000	5%	8750	4594	4594	24117	1313	43,367
146,400	5%	7320	3843	3843	20176	1098	36,280
78,200	5%	3910	2053	2053	10777	587	19,379
340,200	5%	17010	8930	8930	46884	2552	84,306
156,600	5%	7830	4111	4111	21581	1175	38,807
587,400	5%	29370	15419	15419	80951	4406	145,565
146,800	5%	7340	3854	3854	20231	1101	36,379
527,400	5%	26370	13844	13844	72682	3956	130,696
131,800	5%	6590	3460	3460	18164	989	32,662
131,800	5%	6590	3460	3460	18164	989	32,662
263,600	5%	13180	6920	6920	36327	1977	65,323
145,200	5%	7260	3812	3812	20010	1089	35,982
520,000	5%	26000	13650	13650	71663	3900	128,863
284,000	5%	14200	7455	7455	39139	2130	70,379
54,400	5%	2720	1428	1428	7497	408	13,481
450,000	5%	22500	11813	11813	62016	3375	111,516
141,400	5%	7070	3712	3712	19487	1061	35,041
86,000	5%	4300	2258	2258	11852	645	21,312

44	Reboiler Feed Pump	piece	2										
45	Refined diesel pump	piece	2										
46	Vulcanizing agent pump	piece	2										
47	Pour point depressant pump	piece	2										
48	Anti-wear pump	piece	1										
49	Corrosive Pump	piece	2										
50	Slop pump	piece	2										
51	Pneumatic diaphragm pump	piece	1										
52	NEW HYDROGEN COMPRESSOR	piece	2										
53	Air Blower	piece	1										
54	Induced draft fan	piece	1										
55	Reaction Feed Furnace	piece	1										
56	Reboiler Feed Furnace	piece	1										
57	Evacuation muffler of the whole unit	piece	1										
58	Heating furnace steam outlet muffler	piece	1										
59	crude oil filter	piece	1										
60	Hydrogen filter	piece	1										
61	Reaction feed heating furnace fuel gas flame arrester	piece	4										
62	Reaction feed heating furnace everlasting light flame arrester	piece	2										
63	Fractionation tower bottom reboiler fuel gas flame arrester	piece	2										
64	Fractionation tower bottom reboiler everlasting light flame arrester	piece	2										
65	1# HDS Mixer	piece	1										
66	2# HDS Mixer	piece	1										
67	evacuator	piece	1										
68	safety valve	piece	25										
69	Carbon Steel Pipe	meter	11613										
70	stainless steel pipe	meter	439										
71	process valve	piece	2777										
		130,000	5%										
		84,000	5%										
		64,400	5%										
		24,000	5%										
		280,000	5%										
		112,000	5%										
		16,000	5%										
		4,000	5%										
		9,509,400	5%										
		10,000	5%										
		10,000	5%										
		1,204,200	5%										
		780,800	5%										
		2,000	5%										
		2,000	5%										
		2,000	5%										
		40,000	5%										
		28,000	5%										
		14,000	5%										
		14,000	5%										
		14,000	5%										
		30,000	5%										
		30,000	5%										
		26,600	5%										
		244,000	10%										
		973,200	5%										
		351,200	5%										
		2,831,800	5%										

72	pipe fittings	piece	2401
73	Pipe Gasket	piece	3838
74	Pipe flange	piece	6892
75	screw bolt	set	18560
76	Spring support hanger	ton	9.2
77	safety valve	piece	25
78	Energy saving tube holder	ton	11.81
79	Pipe Insulation Materials	m <sup>3</sup>	260
80	Pipeline anti-corrosion insulation	ton	2.16
81	Pipe electrostatic grounding	place	26
82	Electrical equipment distribution box	piece	6
83	Electrical equipment bridge	meter	576
84	Galvanized steel	meter	5436
85	Galvanized angle steel	meter	900
86	Galvanized Channel steel	meter	2845
87	Electrical cable	meter	1930
88	Electrical wire	meter	11585
89	Bimetallic thermometer	piece	240
90	Armor temperature original	piece	256
91	pressure gauge	piece	448
92	Pressure Transmitters	piece	44
93	Differential pressure transmitter	piece	104
94	wedge flowmeter	piece	21
95	Rotameter	piece	4
96	Vortex flowmeter	piece	4
97	Electromagnetic Flowmeter	piece	2
98	Mass Flow Meter	piece	3
99	Glass plate level gauge	piece	12
100	Magnetic level gauge	piece	8
101	Differential pressure level transmitter	piece	14
102	Internal float level gauge	piece	7
103	Magnetostrictive Liquid Level Gauge	piece	10

64,400	20%	12880	1932	1932	10143	483	27,370
96,000	5%	4800	2520	2520	13230	720	23,790
129,200	20%	25840	3876	3876	20349	969	54,910
290,000	20%	58000	8700	8700	45675	2175	123,250
26,000	5%	1300	683	683	3583	195	6,443
244,000	10%	24400	6710	6710	35228	1830	74,878
28,000	20%	5600	840	840	4410	210	11,900
324,200	20%	64840	9726	9726	51062	2432	137,785
1,600	20%	320	48	48	252	12	680
2,000	20%	400	60	60	315	15	850
22,800	20%	4560	684	684	3591	171	9,690
16,000	5%	800	420	420	2205	120	3,965
21,800	5%	1090	572	572	3004	164	5,402
5,600	5%	280	147	147	772	42	1,388
17,800	5%	890	467	467	2453	134	4,411
53,800	20%	10760	1614	1614	8474	404	22,865
6,600	20%	1320	198	198	1040	50	2,805
900,000	5%	45000	23625	23625	124031	6750	223,031
132,400	5%	6620	3476	3476	18246	993	32,810
200,000	5%	10000	5250	5250	27563	1500	49,563
88,000	5%	4400	2310	2310	12128	660	21,808
208,000	5%	10400	5460	5460	28665	1560	51,545
210,000	5%	10500	5513	5513	28941	1575	52,041
8,000	5%	400	210	210	1103	60	1,983
8,000	5%	400	210	210	1103	60	1,983
6,000	5%	300	158	158	827	45	1,487
178,000	5%	8900	4673	4673	24531	1335	44,111
2,400	5%	120	63	63	331	18	595
1,600	5%	80	42	42	221	12	397
28,000	5%	1400	735	735	3859	210	6,939
14,000	5%	700	368	368	1929	105	3,469
200,000	5%	10000	5250	5250	27563	1500	49,563

104	Combustible and toxic gas detectors	piece	43
105	Zirconia oxygen content analyzer	piece	6
106	Self-operated regulating valve	piece	2
107	Regulating valve	piece	74
108	Pneumatic switch valve	piece	9
109	Electric gate valve	piece	5
110	The electromagnetic valve	set	1
111	Throttling device	meter	51
112	Instrumentation pipeline	meter	3130
113	Instrument Valve	piece	760
114	Instrument Fittings	piece	1755
115	Instrument Fasteners	piece	3776
116	Instrument cable tray	meter	21608
117	Instrument cable	meter	78990
118	Lighting distribution box	piece	2
119	lighting fixtures	set	338
120	lighting wire	meter	10800
121	Lightning protection ground electrode	piece	17
122	Lightning protection ground wire	meter	286
123	fire alarm system	set	1
124	Industrial TV Monitoring System	set	1
125	Amplified intercom system	set	1
126	water supply and drainage pipeline	meter	740
127	Water supply and drainage valve	piece	14
128	Water supply and drainage anti-corrosion and insulation materials	ton	0.5
129	Catalyst	ton	120
130	Corrosion inhibitor	ton	18
131	Vulcanizing agent	ton	18
132	Anti-wear agent	ton	220
133	Fire hydrant	piece	12
134	Fire monitors	piece	6

5%	129,000	6450	3386	3386	17778	968	31,968
5%	240,000	12000	6300	6300	33075	1800	59,475
10%	20,000	2000	550	550	2888	150	6,138
10%	1,455,200	145520	40018	40018	210095	10914	446,565
10%	180,000	18000	4950	4950	25988	1350	55,238
10%	50,000	5000	1375	1375	7219	375	15,344
10%	20,000	2000	550	550	2888	150	6,138
5%	204,000	10200	5355	5355	28114	1530	50,554
5%	58,400	2920	1533	1533	8048	438	14,472
10%	904,600	90460	24877	24877	130602	6785	277,599
20%	11,000	2200	330	330	1733	83	4,675
20%	11,800	2360	354	354	1859	89	5,015
20%	58,000	11600	1740	1740	9135	435	24,650
20%	345,000	69000	10350	10350	54338	2588	146,625
20%	7,800	1560	234	234	1229	59	3,315
20%	193,400	38680	5802	5802	30461	1451	82,195
20%	301,200	60240	9036	9036	47439	2259	128,010
20%	4,000	800	120	120	630	30	1,700
20%	8,000	1600	240	240	1260	60	3,400
5%	4,000	200	105	105	551	30	991
5%	4,000	200	105	105	551	30	991
5%	4,000	200	105	105	551	30	991
20%	112,000	22400	3360	3360	17640	840	47,600
10%	18,800	1880	517	517	2714	141	5,769
20%	600	120	18	18	95	5	255
10%	6,375,000	637500	175313	175313	920391	47813	1,956,328
5%	720,000	36000	18900	18900	99225	5400	178,425
5%	259,200	12960	6804	6804	35721	1944	64,233
5%	1,031,200	51560	27069	27069	142112	7734	255,544
5%	6,000	300	158	158	827	45	1,487
5%	5,200	260	137	137	717	39	1,289

135	fire hydrant Box	piece	7	
136	Portable dry powder fire extinguisher	piece	72	
137	Fire extinguisher box	piece	58	
138	Cart Type Dry Powder Fire Extinguisher	piece	2	
139	eye washer	piece	3	
<b>重整</b>				
1	Steel Structure	ton	1225.8	
2	NHT REACTOR	piece	1	
3	NHT DECHLORINATION REACTOR	piece	1	
4	NHT DEARSENIC REACTOR	piece	1	
5	1ST REFORMING REACTOR	piece	1	
6	2ND REFORMING REACTOR	piece	1	
7	3RD REFORMING HEATER	piece	1	
8	4TH REFORMING REACTOR	piece	1	
9	BHT REACTOR	piece	1	
10	STRIPPER	piece	1	
11	NAPHTHA SPLITTER	piece	1	
12	DEBUTANIZER	piece	1	
13	Adsorption tower	piece	8	
14	NHT SEPARATOR	piece	1	
15	LOW PRESSURE SEPARATOR	piece	1	
16	NHT RECYCLE GAS COMPRESSORS SUCTION DRUM	piece	1	
17	STRIPPER RECEIVER	piece	1	
18	NAPHTHA SPLITTER RECEIVER	piece	1	
19	REACTOR EFFLUENT SEPARATOR	piece	1	
20	RECYCLE GAS COMPRESSOR KNOCKOUT DRUM	piece	1	
21	DEBUTANIZER RECEIVER	piece	1	
22	MOLECULAR SIEVE DRYING DRUM MOLECULAR SIEVE REGENERATING WATER DRUM	piece	2	
23		piece	1	
24	SULFIDE INJECTION DRUM NO.1	piece	1	

14,000	5%	700	368	368	1929	105	3,469
2,000	5%	100	53	53	276	15	496
400	5%	20	11	11	55	3	99
7,600	5%	380	200	200	1047	57	1,883
19,800	20%	3960	594	594	3119	149	8,415
1,458,700	20%	291740	43761	43761	229745	10940	619,948
307,400	5%	15370	8069	8069	42364	2306	76,178
307,400	5%	15370	8069	8069	42364	2306	76,178
368,400	5%	18420	9671	9671	50770	2763	91,294
282,000	5%	14100	7403	7403	38863	2115	69,883
286,000	5%	14300	7508	7508	39414	2145	70,874
292,000	5%	14600	7665	7665	40241	2190	72,361
324,000	5%	16200	8505	8505	44651	2430	80,291
307,400	5%	15370	8069	8069	42364	2306	76,178
350,000	5%	17500	9188	9188	48234	2625	86,734
524,000	5%	26200	13755	13755	72214	3930	129,854
413,400	5%	20670	10852	10852	56972	3101	102,446
1,396,400	5%	69820	36656	36656	192441	10473	346,045
156,000	5%	7800	4095	4095	21499	1170	38,659
102,000	5%	5100	2678	2678	14057	765	25,277
65,800	20%	13160	1974	1974	10364	494	27,965
65,800	5%	3290	1727	1727	9068	494	16,306
90,800	5%	4540	2384	2384	12513	681	22,501
93,200	5%	4660	2447	2447	12844	699	23,096
65,800	20%	13160	1974	1974	10364	494	27,965
72,000	5%	3600	1890	1890	9923	540	17,843
77,600	20%	15520	2328	2328	12222	582	32,980
50,000	20%	10000	1500	1500	7875	375	21,250
36,000	20%	7200	1080	1080	5670	270	15,300

25	SULFIDE INJECTION DRUM NO.2	piece	1	
26	SULFIDE INJECTION DRUM NO.3	piece	1	
27	SULFIDE INJECTION DRUM NO.4	piece	1	
28	REFORMING WATER INJECTION DRUM	piece	2	
29	REFORMING CHLORIDE INJECTION DRUM	piece	2	
30	CORROSION INHIBITOR	piece	1	
31	RECYCLE GAS COMPRESSOR KNOCKOUT DRUM	piece	1	
32	REFORMING HYDROGEN-PRODUCING COMPRESSOR OUTLET SEPARATOR DRUM	piece	1	
33	NET GAS CHLORIDE TREATERS	piece	2	
34	HEAT-CONDUCTING OIL DRUM	piece	2	
35	DEBUTANIZER FEED CHLORIDE TREATERS	piece	1	
36	BHT FEED SURGE DRUM	piece	1	
37	BHT SEPARATOR	piece	1	
38	STEAM DISENGAGING DRUM	piece	1	
39	FUEL GAS DRUM	piece	1	
40	FUEL GAS SEPARATOR DRUM	piece	1	
41	INSTRUMENT AIR DRUM	piece	1	
42	MIDDLE PRESSURE NITROGEN DRUM	piece	1	
43	LOW PRESSURE NITROGEN DRUM	piece	1	
44	FUEL GAS DESULFURIZATION DRUM	piece	1	
45	RAW GAS SEPARATION TANK	piece	1	
46	DEASIL DESORBENT GAS DRUM	piece	1	
47	REVERSE DESORBENT GAS DRUM	piece	1	
48	DESORPTION GAS DRUM	piece	1	
49	RAW GAS SEPARATION TANK	piece	1	
50	REACTOR FEED EXCHANGER	piece	7	
51	REACTOR FEED EXCHANGER	piece	2	

36,000	20%	7200	1080	1080	5670	270	15,300
36,000	20%	7200	1080	1080	5670	270	15,300
36,000	20%	7200	1080	1080	5670	270	15,300
27,000	20%	5400	810	810	4253	203	11,475
27,000	20%	5400	810	810	4253	203	11,475
27,000	5%	1350	709	709	3721	203	6,691
55,400	20%	11080	1662	1662	8726	416	23,545
124,000	20%	24800	3720	3720	19530	930	52,700
108,800	5%	5440	2856	2856	14994	816	26,962
124,000	20%	24800	3720	3720	19530	930	52,700
86,400	5%	4320	2268	2268	11907	648	21,411
102,200	20%	20440	3066	3066	16097	767	43,435
108,800	5%	5440	2856	2856	14994	816	26,962
16,000	20%	3200	480	480	2520	120	6,800
100,000	20%	20000	3000	3000	15750	750	42,500
46,400	20%	9280	1392	1392	7308	348	19,720
84,400	20%	16880	2532	2532	13293	633	35,870
84,400	20%	16880	2532	2532	13293	633	35,870
84,400	20%	16880	2532	2532	13293	633	35,870
82,000	20%	16400	2460	2460	12915	615	34,850
79,600	20%	15920	2388	2388	12537	597	33,830
104,000	20%	20800	3120	3120	16380	780	44,200
116,000	20%	23200	3480	3480	18270	870	49,300
116,000	20%	23200	3480	3480	18270	870	49,300
24,000	20%	4800	720	720	3780	180	10,200
1,273,800	5%	63690	33437	33437	175546	9554	315,664
144,400	5%	7220	3791	3791	19900	1083	35,784

52	NAPHTHA SPLITTER FEED-BOTTOMS EXCHANGER	piece	1	
53	STRIPPER REBOILER	piece	1	
54	NAPHTHA SPLITTER REBOILER	piece	1	
55	NHT STARTUP AND SHUTDOWN COOLER	piece	1	
56	SPLITTER CONDENSER	piece	1	
57	SPLITTER CONDENSER	piece	1	
58	NAPHTHA SPLITTER CONDENSER	piece	1	
59	NHT PRODUCTS CONDENSER	piece	1	
60	NHT MAKEUP GAS COMPRESSORS	piece	1	
61	REFORMING FEED-PRODUCT EXCHANGER	piece	1	
62	HYDROGEN-REACTOR EFFLUENT EXCHANGER	piece	1	
63	DEBUTANIZER FEED-BOTTOMS EXCHANGER	piece	4	
64	DEBUTANIZER REBOILER	piece	1	
65	HEAVY REFORMATE COOLER	piece	1	
66	MOLECULAR SIEVE REGENERATING GAS COOLER	piece	1	
67	REFORMING HYDROGEN-PRODUCING COMPRESSOR OUTLET COOLER	piece	1	
68	REACTOR EFFLUENT COOLER	piece	2	
69	HEAT TRANSFER FLUID COOLER	piece	1	
70	DEBUTANIZER CONDENSER	piece	2	
71	BHT FEED-PRODUCT EXCHANGER	piece	2	
72	BHT FEED EXCHANGER	piece	1	
73	BHT PRODUCTS COOLER	piece	1	
74	BHT FEED COOLER	piece	1	
75	NHT PRODUCTS AIR COOLER	piece	2	
76	NAPHTHA SPLITTER AIR COOLER	piece	2	
77	REACTOR EFFLUENT AIR COOLER	piece	4	
78	NHT RECYCLE GAS COMPRESSOR	piece	2	

82,200	5%	4110	2158	2158	11328	617	20,370
226,000	5%	11300	5933	5933	31146	1695	56,006
226,000	5%	11300	5933	5933	31146	1695	56,006
166,400	5%	8320	4368	4368	22932	1248	41,236
157,600	5%	7880	4137	4137	21719	1182	39,055
173,000	5%	8650	4541	4541	23842	1298	42,872
162,000	5%	8100	4253	4253	22326	1215	40,146
173,000	5%	8650	4541	4541	23842	1298	42,872
184,000	5%	9200	4830	4830	25358	1380	45,598
340,000	5%	17000	8925	8925	46856	2550	84,256
380,000	5%	19000	9975	9975	52369	2850	94,169
133,200	5%	6660	3497	3497	18357	999	33,009
226,000	5%	11300	5933	5933	31146	1695	56,006
226,000	5%	11300	5933	5933	31146	1695	56,006
148,200	5%	7410	3890	3890	20424	1112	36,726
148,200	5%	7410	3890	3890	20424	1112	36,726
306,000	5%	15300	8033	8033	42171	2295	75,831
138,000	5%	6900	3623	3623	19018	1035	34,198
420,000	5%	21000	11025	11025	57881	3150	104,081
256,000	5%	12800	6720	6720	35280	1920	63,440
114,000	5%	5700	2993	2993	15711	855	28,251
138,000	5%	6900	3623	3623	19018	1035	34,198
114,000	5%	5700	2993	2993	15711	855	28,251
720,000	5%	36000	18900	18900	99225	5400	178,425
671,200	5%	33560	17619	17619	92500	5034	166,332
1,411,200	5%	70560	37044	37044	194481	10584	349,713
1,653,600	5%	82680	43407	43407	227887	12402	409,783

79	NHT MAKEUP GAS COMPRESSORS	piece	2	
80	REFORMING RECYCLE HYDROGEN COMPRESSOR	piece	3	
81	BLOWER	piece	1	
82	INDUCED DRAFT FAN	piece	1	
83	DESORPTION GAS COMPRESSOR	piece	2	
84	NHT CHARGE HEATER	piece	1	
85	1ST REFORMING HEATER	piece	1	
86	2ND REFORMING HEATER	piece	1	
87	3RD REFORMING HEATER	piece	1	
88	4TH REFORMING HEATER	piece	1	
89	MOLECULAR SIEVE REGENERATING HEATER	piece	1	
90	HEAT-CONDUCTING OIL HEATER	piece	1	
91	NHT CHARGE PUMP		2	
92	STRIPPER REFLUX PUMP		3	
93	NAPHTHA SPLITTER REFLUX PUMP		2	
94	REFORMING FEED PUMP		4	
95	Debutanizer Feed Pump		2	
96	Debutanizer overhead reflux pump		2	
97	WATER INJECTION PUMP		2	
98	CHLORIDE INJECTION PUMP		2	
99	HEAT-CONDUCTING OIL CIRCULATING PUMP		2	
100	BHT FEED PUMP		2	
101	BHT OIL CIRCULATING PUMP		2	
102	VENT OIL PUMP		1	
103	CORROSION INHIBITOR PUMP		2	
104	NHT PRODUCTS SAMPLER	piece	1	
105	CIRCULATION HYDROGEN SAMPLER	piece	1	
106	EFFLUENT SEPARATOR SOUR WATER SAMPLER	piece	1	
107	NHT NAPHTHA SAMPLER	piece	1	

1,770,000	5%	88500	46463	46463	243928	13275	438,628
2,640,000	5%	132000	69300	69300	363825	19800	654,225
16,000	5%	800	420	420	2205	120	3,965
16,000	5%	800	420	420	2205	120	3,965
1,488,800	5%	74440	39081	39081	205175	11166	368,943
313,326	5%	15666	8225	8225	43180	2350	77,646
1,576,945	5%	78847	41395	41395	217323	11827	390,787
1,914,862	5%	95743	50265	50265	263892	14361	474,527
1,584,455	5%	79223	41592	41592	218358	11883	392,648
938,658	5%	46933	24640	24640	129359	7040	232,611
262,824	5%	13141	6899	6899	36220	1971	65,131
3,092,315	5%	154616	81173	81173	426160	23192	766,314
291,200	5%	14560	7644	7644	40131	2184	72,163
304,000	5%	15200	7980	7980	41895	2280	75,335
202,000	5%	10100	5303	5303	27838	1515	50,058
455,200	5%	22760	11949	11949	62732	3414	112,804
528,400	5%	26420	13871	13871	72820	3963	130,944
210,000	5%	10500	5513	5513	28941	1575	52,041
210,000	5%	10500	5513	5513	28941	1575	52,041
91,000	5%	4550	2389	2389	12541	683	22,551
138,000	5%	6900	3623	3623	19018	1035	34,198
210,000	5%	10500	5513	5513	28941	1575	52,041
171,000	5%	8550	4489	4489	23566	1283	42,376
4,000	5%	200	105	105	551	30	991
12,000	5%	600	315	315	1654	90	2,974
200	5%	10	5	5	28	2	50
200	5%	10	5	5	28	2	50
200	5%	10	5	5	28	2	50
200	5%	10	5	5	28	2	50







144	Equipment fire protection material	ton	0.02	
145	Metal Structure Platform Ladder	ton	45	
146	Equipment filler	m <sup>3</sup>	52.93	
147	PSA program-controlled complete equipment	set	1	
148	Bridge lifting equipment	piece	1	
149	safety valve	piece	53	
150	Carbon Steel Pipe	meter	22992	
151	Alloy Steel Pipe	meter	711	
152	stainless steel pipe	meter	488	
153	process valve	piece	3408	
154	pipe fittings	piece	5209	
155	Pipe Gasket	piece	6850	
156	Pipe flange	piece	6892	
157	screw bolt	set	18560	
158	Spring support hanger	ton	16.5	
159	Pipeline Insulation Materials	m <sup>3</sup>	102	
160	Pipeline anti-corrosion materials	m <sup>3</sup>	1950	
161	Pipe electrostatic grounding	place	78	
162	Electrical cable bridge	meter	1120	
163	Electrical cable	meter	53655	
164	Electrical equipment distribution box	piece	5	
165	Galvanized steel	meter	16282	
166	Galvanized angle steel	meter	5775	
167	Galvanized Channel steel	meter	9234	
168	Explosion-proof lighting fixtures	set	508	
169	Static ground wire	meter	900	
170	Electrostatic ground electrode	piece	30	
171	Instrumentation pipeline	meter	17052	
172	Instrument Valve	piece	3552	
173	Instrument Fittings	piece	9757	
174	Instrument Fasteners	piece	23215	
175	Instrument electrical materials	piece	11929	

200	20%	40	6	6	32	2	85
95,600	20%	19120	2868	2868	15057	717	40,630
352,600	5%	17630	9256	9256	48593	2645	87,379
5,639,200	5%	281960	148029	148029	777152	42294	1,397,464
181,400	5%	9070	4762	4762	24999	1361	44,953
9,410	10%	941	259	259	1359	71	2,888
76,190	5%	3810	2000	2000	10500	571	18,881
49,970	5%	2499	1312	1312	6886	375	12,383
13,430	5%	672	353	353	1851	101	3,328
74,730	10%	7473	2055	2055	10789	560	22,933
6,990	20%	1398	210	210	1101	52	2,971
8,700	5%	435	228	228	1199	65	2,156
6,460	20%	1292	194	194	1017	48	2,746
14,500	20%	2900	435	435	2284	109	6,163
152,200	20%	30440	4566	4566	23972	1142	64,685
184,600	20%	36920	5538	5538	29075	1385	78,455
200	20%	40	6	6	32	2	85
600	20%	120	18	18	95	5	255
31,200	20%	6240	936	936	4914	234	13,260
1,696,600	20%	339320	50898	50898	267215	12725	721,055
19,000	20%	3800	570	570	2993	143	8,075
65,400	5%	3270	1717	1717	9013	491	16,207
13,800	5%	690	362	362	1902	104	3,420
58,000	5%	2900	1523	1523	7993	435	14,373
260,600	20%	52120	7818	7818	41045	1955	110,755
25,000	20%	5000	750	750	3938	188	10,625
7,200	20%	1440	216	216	1134	54	3,060
2,240,000	5%	112000	58800	58800	308700	16800	555,100
2,240,000	10%	224000	61600	61600	323400	16800	687,400
71,200	5%	3560	1869	1869	9812	534	17,644
72,600	5%	3630	1906	1906	10005	545	17,991
18,600	20%	3720	558	558	2930	140	7,905

176	Angle steel for instrument	meter	7612
177	Instrument cable tray	meter	14490
178	Instrument cable	meter	86056
179	fire alarm system	set	1
180	fire control system	set	1
181	Industrial TV Monitoring System	set	1
182	Integrated wiring system	set	1
183	telephone system	set	1
184	water supply and drainage pipeline	meter	2096
185	Water supply and drainage valve	piece	25
186	Water supply and drainage anti-corrosion and insulation materials	ton	1
187	HVAC system	set	1
188	Pre-hydrogenation catalyst	ton	30
189	Reformer Catalyst	ton	62
190	Benzene hydrogenation catalyst	ton	11.5
191	Dechlorination agent	ton	42
192	desiccant	ton	44
193	Corrosion inhibitor	ton	10
194	Fire hydrant	set	5
195	Deluge valve group	set	1
196	Fire monitors	piece	4
<b>Hydrogen production unit</b>			
1	Steel Structure	ton	175
2	Cobalt Molybdenum Hydrogenation Reactor	piece	1
3	Zinc oxide desulfurization tank	piece	2
4	Raw gas buffer tank	piece	1
5	Continuous blowdown tank	piece	1
6	Deaerator	piece	1
7	Inverter water divider	piece	2
8	Air preheater	piece	1
9	Steam generator	piece	1
10	Water cooler	piece	1

47,800	20%	9560	1434	1434	7529	359	20,315
403,000	20%	80600	12090	12090	63473	3023	171,275
149,000	20%	29800	4470	4470	23468	1118	63,325
4,000	5%	200	105	105	551	30	991
18,200	5%	910	478	478	2508	137	4,510
4,000	5%	200	105	105	551	30	991
4,000	20%	800	120	120	630	30	1,700
800	10%	80	22	22	116	6	246
153,800	20%	30760	4614	4614	24224	1154	65,365
17,000	10%	1700	468	468	2454	128	5,217
1,200	20%	240	36	36	189	9	510
84,200	20%	16840	2526	2526	13262	632	35,785
1,125,000	10%	112500	30938	30938	162422	8438	345,234
23,250,000	10%	2325000	639375	639375	3356719	174375	7,134,844
664,800	10%	66480	18282	18282	95981	4986	204,011
196,800	5%	9840	5166	5166	27122	1476	48,770
68,800	5%	3440	1806	1806	9482	516	17,050
156,000	5%	7800	4095	4095	21499	1170	38,659
200	5%	10	5	5	28	2	50
10,000	5%	500	263	263	1378	75	2,478
8,000	5%	400	210	210	1103	60	1,983
207,100	20%	41420	6213	6213	32618	1553	88,018
60,000	5%	3000	1575	1575	8269	450	14,869
42,000	20%	8400	1260	1260	6615	315	17,850
36,000	20%	7200	1080	1080	5670	270	15,300
10,000	20%	2000	300	300	1575	75	4,250
24,000	20%	4800	720	720	3780	180	10,200
16,000	5%	800	420	420	2205	120	3,965
12,000	5%	600	315	315	1654	90	2,974
46,000	5%	2300	1208	1208	6339	345	11,399
36,000	5%	1800	945	945	4961	270	8,921

11	Feed water preheater	piece	1
12	Reformer	piece	1
13	Air preheater	piece	1
14	burner	piece	1
15	shift converter	piece	1
16	Air intake pipe	piece	1
17	Stack	piece	1
18	Phosphoric acid dosing device	set	1
19	Natural gas compressor	piece	2
20	Blower	piece	2
21	Induced draft fan	piece	2
22	Feed pump	piece	2
23	Conversion catalyst	ton	20
24	Cobalt Molybdenum Hydrogenation Catalyst	ton	3.2
25	Zinc oxide desulfurizer	ton	2.4
26	Catalyst	ton	3.6
27	Pressure Transmitters	piece	21
28	Temperature Transmitter	piece	28
29	Differential pressure transmitter	piece	11
30	Visible level gauge	piece	6
31	Orifice plate	piece	4
32	Regulating valve	piece	15
33	Combustible and toxic gas detectors	piece	7
34	Electrical cabinet	piece	3
35	Explosion-proof operation column	piece	8
36	Lighting boxes and lamps	piece	1
37	Offline chromatography	piece	1
38	Flue gas residual oxygen meter	piece	1
39	Thermometer	piece	33
40	Armored Temperature Elements	piece	89
41	Carbon Steel Pipe	meter	6431
42	process valve	piece	1248

24,000	5%	1200	630	630	3308	180	5,948
300,000	5%	15000	7875	7875	41344	2250	74,344
42,000	5%	2100	1103	1103	5788	315	10,408
12,000	5%	600	315	315	1654	90	2,974
100,000	5%	5000	2625	2625	13781	750	24,781
24,000	5%	1200	630	630	3308	180	5,948
10,000	5%	500	263	263	1378	75	2,478
10,000	5%	500	263	263	1378	75	2,478
320,000	20%	64000	9600	9600	50400	2400	136,000
10,000	5%	500	263	263	1378	75	2,478
10,000	5%	500	263	263	1378	75	2,478
62,000	5%	3100	1628	1628	8544	465	15,364
312,600	10%	31260	8597	8597	45132	2345	95,929
80,000	10%	8000	2200	2200	11550	600	24,550
45,000	5%	2250	1181	1181	6202	338	11,152
56,200	10%	5620	1546	1546	8114	422	17,246
42,000	5%	2100	1103	1103	5788	315	10,408
56,000	5%	2800	1470	1470	7718	420	13,878
22,000	5%	1100	578	578	3032	165	5,452
4,600	5%	230	121	121	634	35	1,140
4,000	5%	200	105	105	551	30	991
240,000	10%	24000	6600	6600	34650	1800	73,650
21,000	5%	1050	551	551	2894	158	5,204
10,000	5%	500	263	263	1378	75	2,478
2,400	5%	120	63	63	331	18	595
4,000	20%	800	120	120	630	30	1,700
50,000	5%	2500	1313	1313	6891	375	12,391
64,000	5%	3200	1680	1680	8820	480	15,860
1,600	5%	80	42	42	221	12	397
26,800	5%	1340	704	704	3693	201	6,641
42,300	5%	2115	1110	1110	5829	317	10,482
980	10%	98	27	27	141	7	301

43	pipe fittings	piece	2540
44	Pipe flange	piece	1934
45	Pipe Gasket	piece	1882
46	screw bolt	set	7234
47	Spring support hanger	piece	71
48	Insulation Materials	m <sup>3</sup>	162
49	Anti-corrosion materials	ton	2.2
50	Explosion-proof maintenance power box	piece	2
51	Electrical cable bridge	meter	366
52	Explosion-proof operation column	set	37
53	power cable	meter	8945
54	Galvanized steel	meter	1977
55	Galvanized angle steel	meter	1700
56	fire alarm system	set	1
57	Industrial TV Monitoring System	set	1
58	water supply and drainage pipeline	meter	851
59	Water supply and drainage valve	piece	8
<b>酸性水汽提</b>			
1	Steel Structure	ton	226.38
2	Stripper	piece	1
3	Sour Water Flash Drum	piece	1
4	Oil Drum	piece	1
5	1st Separator	piece	1
6	2nd Separator	piece	1
7	3rd Separator	piece	1
8	Sour Water Degreaser	piece	1
9	Ammonia Tank	piece	1
10	Ammonia Tank Water Seal	piece	1
11	Absorption Drum	piece	1
12	Condensate Recovery Drum	piece	1
13	Relief Gas Cooling Tank	piece	1
14	Sour Water Tank	piece	1

1,980	20%	396	59	59	312	15	842
2,420	20%	484	73	73	381	18	1,029
1,760	5%	88	46	46	243	13	436
5,650	20%	1130	170	170	890	42	2,401
11,400	20%	2280	342	342	1796	86	4,845
293,000	20%	58600	8790	8790	46148	2198	124,525
1,800	20%	360	54	54	284	14	765
5,600	20%	1120	168	168	882	42	2,380
10,200	20%	2040	306	306	1607	77	4,335
11,200	20%	2240	336	336	1764	84	4,760
249,400	20%	49880	7482	7482	39281	1871	105,995
8,800	5%	440	231	231	1213	66	2,181
4,800	5%	240	126	126	662	36	1,190
4,000	5%	200	105	105	551	30	991
4,000	5%	200	105	105	551	30	991
4,800	20%	960	144	144	756	36	2,040
2,600	20%	520	78	78	410	20	1,105
268,200	20%	53640	8046	8046	42242	2012	113,985
249,400	20%	49880	7482	7482	39281	1871	105,995
45,600	20%	9120	1368	1368	7182	342	19,380
13,000	20%	2600	390	390	2048	98	5,525
19,800	5%	990	520	520	2729	149	4,907
14,400	5%	720	378	378	1985	108	3,569
14,400	5%	720	378	378	1985	108	3,569
51,000	5%	2550	1339	1339	7028	383	12,638
60,800	0%	0	1520	1520	7980	456	11,476
5,400	0%	0	135	135	709	41	1,019
11,400	20%	2280	342	342	1796	86	4,845
29,600	20%	5920	888	888	4662	222	12,580
13,600	20%	2720	408	408	2142	102	5,780
135,200	20%	27040	4056	4056	21294	1014	57,460

15	Sour Water Surge Tank	piece	1	
16	Torch condensate hydraulic delivery tank	piece	1	
17	Cold Feed Cooler	piece	1	
18	Feed/Stripped Water 1st Heat Exchanger	piece	1	
19	1st Condensing Cooler	piece	1	
20	Feed/Stripped Water 2nd Heat Exchanger	piece	1	
21	Stripper Reboiler	piece	1	
22	Condensate Cooler	piece	1	
23	2nd Condensing Cooler	piece	1	
24	3rd Condensing Cooler	piece	1	
25	Stripped Water Cooler	piece	1	
26	Ammonia Cooler	piece	1	
27	Stripped Water Air Cooler	piece	2	
28	Steam Exhaust Air Cooler	piece	1	
29	Sour Water Booster Pump	piece	2	
30	Oil Pump	piece	1	
31	Sour Water Feed Pump	piece	2	
32	Ammonia Pump	piece	2	
33	Condensate Pump	piece	2	
34	Stripped Water Booster Pump	piece	2	
35	Sour Water Filter	piece	2	
36	Acid Gas Sealed Sampler	piece	1	
37	1st Separator Sampler	piece	1	
38	2nd Separator Sampler	piece	1	
39	3rd Separator Sampler	piece	1	
40	Ammonia Gas Sampler	piece	1	
41	Ammonia Mixer	piece	1	
42	Steam Desuperheater	piece	1	
43	Equipment Insulation Materials	m <sup>3</sup>	134	
44	Equipment primer	ton	3	
45	Equipment topcoat	ton	6	
46	Metal Structure Platform Ladder	ton	35	

129,600	20%	25920	3888	3888	20412	972	55,080
7,600	20%	1520	228	228	1197	57	3,230
31,800	5%	1590	835	835	4382	239	7,880
31,800	5%	1590	835	835	4382	239	7,880
164,600	5%	8230	4321	4321	22684	1235	40,790
264,000	5%	13200	6930	6930	36383	1980	65,423
142,600	5%	7130	3743	3743	19652	1070	35,338
42,400	5%	2120	1113	1113	5843	318	10,507
40,600	5%	2030	1066	1066	5595	305	10,061
40,600	5%	2030	1066	1066	5595	305	10,061
92,800	5%	4640	2436	2436	12789	696	22,997
30,600	5%	1530	803	803	4217	230	7,583
135,600	5%	6780	3560	3560	18687	1017	33,603
36,400	5%	1820	956	956	5016	273	9,020
86,200	5%	4310	2263	2263	11879	647	21,361
6,200	5%	310	163	163	854	47	1,536
65,000	5%	3250	1706	1706	8958	488	16,108
27,000	5%	1350	709	709	3721	203	6,691
20,800	5%	1040	546	546	2867	156	5,155
59,000	5%	2950	1549	1549	8131	443	14,621
12,600	5%	630	331	331	1736	95	3,122
9,400	5%	470	247	247	1295	71	2,329
9,000	5%	450	236	236	1240	68	2,230
9,000	5%	450	236	236	1240	68	2,230
9,000	5%	450	236	236	1240	68	2,230
9,000	5%	450	236	236	1240	68	2,230
7,200	5%	360	189	189	992	54	1,784
5,600	5%	280	147	147	772	42	1,388
48,000	20%	9600	1440	1440	7560	360	20,400
4,200	20%	840	126	126	662	32	1,785
5,800	5%	290	152	152	799	44	1,437
83,000	20%	16600	2490	2490	13073	623	35,275

47	Pipeline anti-corrosion insulation material	m <sup>3</sup>	336
48	Pipeline primer	ton	11
49	Pipeline topcoat	ton	22
50	Carbon Steel Pipe	meter	6612
51	Stainless steel pipe	meter	66.5
52	process valve	piece	1148
53	Pipe elbow	piece	453
54	Pipe Gasket	piece	2296
55	Pipe flange	piece	2296
56	Safety valve	piece	4
57	Pipeline Insulation Materials	m <sup>3</sup>	65
58	Pipeline primer	ton	5.5
59	Pipeline topcoat	ton	11
60	Pipe electrostatic grounding wire	piece	15
61	Electrical cable tray	ton	11.6
62	Electrical cable	meter	5200
63	Lighting distribution box	piece	2
64	lighting fixtures	set	115
65	Lightning protection ground wire	meter	1410
66	Bimetallic thermometer	piece	26
67	Armor temperature original pressure gauge	piece	28
68	Pressure Transmitters	piece	29
69	Differential pressure transmitter	piece	19
70	Throttling device	piece	16
71	Balanced flow meter	piece	12
72	Built-in orifice differential pressure transmitter	piece	2
73	Rotameter	piece	1
74	Vortex flowmeter	piece	1
75	Electromagnetic Flowmeter	piece	2
76	Glass plate level gauge	piece	3
77	Magnetic level gauge	piece	13
78		piece	1

47,000	20%	9400	1410	1410	7403	353	19,975
15,400	20%	3080	462	462	2426	116	6,545
21,000	20%	4200	630	630	3308	158	8,925
10,420	5%	521	274	274	1436	78	2,582
950	5%	48	25	25	131	7	235
17,560	10%	1756	483	483	2535	132	5,389
540	20%	108	16	16	85	4	230
8,040	5%	402	211	211	1108	60	1,992
11,480	20%	2296	344	344	1808	86	4,879
1,100	10%	110	30	30	159	8	338
9,100	20%	1820	273	273	1433	68	3,868
7,800	20%	1560	234	234	1229	59	3,315
10,400	20%	2080	312	312	1638	78	4,420
400	20%	80	12	12	63	3	170
22,000	20%	4400	660	660	3465	165	9,350
145,000	20%	29000	4350	4350	22838	1088	61,625
11,200	20%	2240	336	336	1764	84	4,760
65,800	20%	13160	1974	1974	10364	494	27,965
7,000	20%	1400	210	210	1103	53	2,975
5,200	5%	260	137	137	717	39	1,289
8,400	5%	420	221	221	1158	63	2,082
1,450	5%	73	38	38	200	11	359
38,000	5%	1900	998	998	5237	285	9,417
32,000	5%	1600	840	840	4410	240	7,930
24,000	5%	1200	630	630	3308	180	5,948
2,000	5%	100	53	53	276	15	496
3,000	5%	150	79	79	413	23	743
7,000	5%	350	184	184	965	53	1,735
4,000	5%	200	105	105	551	30	991
9,000	5%	450	236	236	1240	68	2,230
9,400	5%	470	247	247	1295	71	2,329
6,000	5%	300	158	158	827	45	1,487



79	Differential pressure level transmitter	piece	9	
80	Float level gauge	piece	1	
81	Buoy steel belt level gauge	piece	1	
82	Combustible and toxic gas detectors	piece	23	
83	Regulating valve	piece	20	
84	Pneumatic switch valve	piece	1	
85	Instrumentation pipeline	meter	2366	
86	Instrument Valve	piece	87	
87	Instrumentation cable	meter	26000	
88	Water supply and drainage pipeline	meter	413	
89	Water supply and drainage valve	piece	4	
90	Catalysts and Chemicals	ton	0.8	
91	Fire hydrant box	set	8	
92	Fire extinguisher	set	53	
93	eye washer	set	3	
<b>Solvent regeneration unit</b>				
1	Steel Structure	ton	40.32	
2	Regenerator	piece	1	
3	Flash Drum	piece	1	
4	Amine Storage Tank	piece	1	
5	Amine Drum	piece	1	
6	Water Seal	piece	1	
7	Relief Gas Cooling Tank	piece	1	
8	Lean/Rich Amine Heat Exchanger	piece	1	
9	Lean Amine Water Cooler	piece	2	
10	Regenerator Overhead Cooler	piece	2	
11	Reboiler	piece	1	
12	Regenerator Overhead Air Cooler	piece	1	
13	Rich Amine Filter	piece	1	
14	Lean Amine Filter	piece	1	
15	Acid Gas Sampler	piece	1	
16	Safety valve	piece	2	

18,000	5%	900	473	473	2481	135	4,461
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
69,000	5%	3450	1811	1811	9509	518	17,099
320,000	10%	32000	8800	8800	46200	2400	98,200
20,000	10%	2000	550	550	2888	150	6,138
26,200	20%	5240	786	786	4127	197	11,135
40,000	10%	4000	1100	1100	5775	300	12,275
45,000	20%	9000	1350	1350	7088	338	19,125
19,800	20%	3960	594	594	3119	149	8,415
1,800	10%	180	50	50	260	14	552
8,400	10%	840	231	231	1213	63	2,578
16,000	5%	800	420	420	2205	120	3,965
1,200	5%	60	32	32	165	9	297
9,800	20%	1960	294	294	1544	74	4,165
47,800	20%	9560	1434	1434	7529	359	20,315
334,000	5%	16700	8768	8768	46029	2505	82,769
28,400	20%	5680	852	852	4473	213	12,070
70,800	20%	14160	2124	2124	11151	531	30,090
13,000	20%	2600	390	390	2048	98	5,525
1,200	5%	60	32	32	165	9	297
6,200	20%	1240	186	186	977	47	2,635
454,600	5%	22730	11933	11933	62650	3410	112,656
227,200	5%	11360	5964	5964	31311	1704	56,303
100,800	5%	5040	2646	2646	13892	756	24,980
147,200	5%	7360	3864	3864	20286	1104	36,478
189,800	5%	9490	4982	4982	26157	1424	47,035
64,000	5%	3200	1680	1680	8820	480	15,860
64,000	5%	3200	1680	1680	8820	480	15,860
9,400	5%	470	247	247	1295	71	2,329
15,200	10%	1520	418	418	2195	114	4,665

17	Equipment insulation material	m <sup>3</sup>	50
18	Equipment primer	ton	3
19	Equipment topcoat	ton	6
20	Metal Structure Platform Ladder	ton	25
21	Lean Amine Circulating Pump	piece	2
22	Regenerator Reflux Pump	piece	2
23	Amine Pump	piece	1
24	Amine Make-up Pump	piece	1
25	Lean Amine Pump	piece	2
26	Electrical operating column	piece	10
27	Electrical cable	meter	3260
28	Lightning protection ground wire	meter	180
29	Carbon Steel Pipe	meter	5543
30	Stainless steel pipe	meter	136
31	process valve	piece	854
32	Pipe elbow	piece	522
33	Pipe Gasket	piece	1708
34	Pipe flange	piece	1708
35	Bimetallic thermometer	piece	11
36	Armored Thermocouple	piece	10
37	pressure gauge, vacuum gauge	piece	19
38	Smart Pressure Transmitter	piece	8
39	Smart Differential Pressure Transmitter	piece	5
40	Glass plate (tube) level gauge	piece	8
41	Flange pressure, differential pressure transmitter	piece	3
42	Float Level Gauge/Level Switch	piece	1
43	Steel belt level gauge	piece	2
44	Flammable/toxic gas alarm	piece	6
45	Throttling device	piece	4
46	Flange pressure, differential pressure transmitter	piece	1
47	Pneumatic control valve	piece	6
48	Pneumatic switch valve	piece	1

7,000	20%	1400	210	210	1103	53	2,975
4,200	20%	840	126	126	662	32	1,785
5,800	20%	1160	174	174	914	44	2,465
59,200	20%	11840	1776	1776	9324	444	25,160
73,200	5%	3660	1922	1922	10088	549	18,140
27,000	5%	1350	709	709	3721	203	6,691
7,600	5%	380	200	200	1047	57	1,883
10,000	5%	500	263	263	1378	75	2,478
42,000	5%	2100	1103	1103	5788	315	10,408
800	5%	40	21	21	110	6	198
91,000	20%	18200	2730	2730	14333	683	38,675
2,200	20%	440	66	66	347	17	935
8,760	5%	438	230	230	1207	66	2,171
1,900	5%	95	50	50	262	14	471
13,070	10%	1307	359	359	1887	98	4,011
630	20%	126	19	19	99	5	268
5,980	5%	299	157	157	824	45	1,482
8,540	20%	1708	256	256	1345	64	3,630
2,200	5%	110	58	58	303	17	545
3,000	5%	150	79	79	413	23	743
950	5%	48	25	25	131	7	235
16,000	5%	800	420	420	2205	120	3,965
10,000	5%	500	263	263	1378	75	2,478
6,000	5%	300	158	158	827	45	1,487
6,000	5%	300	158	158	827	45	1,487
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
18,000	5%	900	473	473	2481	135	4,461
8,000	5%	400	210	210	1103	60	1,983
2,000	5%	100	53	53	276	15	496
96,000	10%	9600	2640	2640	13860	720	29,460
20,000	10%	2000	550	550	2888	150	6,138

49	Instrumentation pipeline	meter	1185
50	Instrument Valve	piece	36
51	Instrumentation cable	meter	8167
52	Water supply and drainage pipeline	meter	510
53	Water supply and drainage valve	piece	12
54	Catalysts and Chemicals	ton	40
55	fire hydrant	set	2
56	Portable Fire Extinguisher	piece	16
57	Cart Fire Extinguisher	piece	1
<b>Sulfuric acid plant</b>			
1	Steel Structure	ton	45
2	Description tower	piece	1
3	Filler Tower	piece	1
4	Demopsturizing column	piece	1
5	Absorption tower	piece	2
6	Power wave exhaust gas absorption tower	piece	1
7	Boiler blowdown expansion vessel	piece	1
8	Expansion slot	piece	1
9	Sewage Neutralization Tank	piece	1
10	Circulation tank	piece	3
11	Underground trough	piece	2
12	Plate Type Heat Exchanger	piece	1
13	Plate Type Heat Exchanger	piece	1
14	I heat exchanger	piece	1
15	II heat exchanger	piece	1
16	III heat exchanger	piece	1
17	IV heat exchanger	piece	1
18	Distillation pump	piece	2
19	Power wave dilute acid circulating pump	piece	2
20	Filled tower dilute acid circulating pump	piece	2

13,200	5%	660	347	347	1819	99	3,271
16,600	10%	1660	457	457	2397	125	5,094
14,200	20%	2840	426	426	2237	107	6,035
67,600	20%	13520	2028	2028	10647	507	28,730
4,800	20%	960	144	144	756	36	2,040
229,400	10%	22940	6309	6309	33120	1721	70,397
1,000	5%	50	26	26	138	8	248
400	5%	20	11	11	55	3	99
3,800	5%	190	100	100	524	29	942
-							
53,300	20%	10660	1599	1599	8395	400	22,653
9,400	5%	470	247	247	1295	71	2,329
96,800	5%	4840	2541	2541	13340	726	23,988
112,600	5%	5630	2956	2956	15518	845	27,904
225,400	5%	11270	5917	5917	31063	1691	55,857
45,600	5%	2280	1197	1197	6284	342	11,300
11,800	5%	590	310	310	1626	89	2,924
12,600	5%	630	331	331	1736	95	3,122
12,600	5%	630	331	331	1736	95	3,122
101,200	5%	5060	2657	2657	13947	759	25,079
12,600	5%	630	331	331	1736	95	3,122
50,600	5%	2530	1328	1328	6973	380	12,539
46,000	5%	2300	1208	1208	6339	345	11,399
27,200	5%	1360	714	714	3749	204	6,741
29,600	5%	1480	777	777	4079	222	7,335
111,800	5%	5590	2935	2935	15407	839	27,705
128,200	5%	6410	3365	3365	17668	962	31,770
28,200	5%	1410	740	740	3886	212	6,988
18,800	5%	940	494	494	2591	141	4,659
16,800	5%	840	441	441	2315	126	4,163

21	Sewage pump	piece	1	
22	Dry suction acid circulating pump	piece	4	
23	Underground tank pump	piece	2	
24	lye pump	piece	2	
25	Exhaust gas absorption circulating pump	piece	2	
26	Converter	piece	1	
27	Hydrogen Sulfide Sulfur Incinerator	piece	1	
28	Waste Heat Boiler	piece	1	
29	First-stage electric heating furnace	piece	1	
30	Fourth-stage electric heating furnace	piece	1	
31	Belt conveyor	piece	1	
32	Air Blower	piece	1	
33	SO2 Blower	piece	1	
34	Rapid sulfur melting tank	piece	1	
35	Settler	piece	1	
36	Brimstone Gun	piece	2	
37	Hydrogen Sulfide Gun	piece	2	
38	Burner Gun	piece	2	
39	Power wave scrubber	piece	1	
40	Safety seal	piece	1	
41	Acid seal	piece	2	
42	Electric mist eliminator	piece	1	
43	Purification section pipes, fittings, gaskets, flanges	set	1	
44	Manual hoist	piece	2	
45	Stack	set	1	
46	Dry suction section pipes, fittings, gaskets, flanges	set	1	
47	Conversion catalyst	ton	25	
48	Carbon Steel Pipe	meter	3566	
49	Stainless steel pipe	meter	366	

5%	4,400	220	116	116	606	33	1,090
5%	67,600	3380	1775	1775	9316	507	16,752
5%	33,800	1690	887	887	4658	254	8,376
5%	10,600	530	278	278	1461	80	2,627
5%	11,200	560	294	294	1544	84	2,776
5%	234,400	11720	6153	6153	32303	1758	58,087
5%	625,000	31250	16406	16406	86133	4688	154,883
5%	281,200	14060	7382	7382	38753	2109	69,685
5%	24,400	1220	641	641	3363	183	6,047
5%	12,200	610	320	320	1681	92	3,023
5%	16,800	840	441	441	2315	126	4,163
5%	16,800	840	441	441	2315	126	4,163
5%	135,000	6750	3544	3544	18605	1013	33,455
5%	50,600	2530	1328	1328	6973	380	12,539
5%	73,200	3660	1922	1922	10088	549	18,140
5%	16,800	840	441	441	2315	126	4,163
5%	26,800	1340	704	704	3693	201	6,641
5%	20,600	1030	541	541	2839	155	5,105
5%	121,200	6060	3182	3182	16703	909	30,035
5%	1,800	90	47	47	248	14	446
5%	3,800	190	100	100	524	29	942
5%	143,400	7170	3764	3764	19762	1076	35,536
5%	182,800	9140	4799	4799	25192	1371	45,300
5%	3,600	180	95	95	496	27	892
5%	20,000	1000	525	525	2756	150	4,956
5%	312,600	15630	8206	8206	43080	2345	77,466
5%	168,800	8440	4431	4431	23263	1266	41,831
5%	5,630	282	148	148	776	42	1,395
5%	5,120	256	134	134	706	38	1,269

50	Pipe fittings	piece	522
51	Pipe Gasket	piece	864
52	Pipe flange	piece	864
53	Process valve	piece	432
54	Thermocouple	piece	37
55	Thermocouple	piece	30
56	Smart Pressure Transmitter	piece	30
57	Differential pressure transmitter	piece	9
58	Diaphragm pressure transmitter	piece	16
59	Level gauge	piece	14
60	Electromagnetic Flowmeter	piece	2
61	Orifice flowmeter	piece	2
62	Combustible and toxic and harmful alarms	piece	8
63	Stainless Steel Shockproof Pressure Gauge	piece	10
64	Regulating valve	piece	14
65	Oxygen analyzer	piece	1
66	Acid concentration analyzer	piece	3
67	Sulfur dioxide analyzer	piece	1
68	Acid leak detector	piece	3
<b>Crude Oil Tank Farm</b>			
1	Steel Structure	ton	26.16
2	Light Crude Oil Tank Plates	ton	1974
3	Light/Heavy Crude Oil Tank Plates	ton	687
4	Light Crude Oil Feed Pump	piece	2
5	Heavy Crude Oil Feed Pump	piece	2
6	Crude oil blending tank pump	piece	2
7	Light Crude Oil Tank Sampler	piece	1
8	Heavy Crude Oil Sampler	piece	1
9	Light Crude Oil Storage Tank Dehydrator	piece	3
10	Heavy Crude Oil Storage Tank Dehydrator	piece	1

20%	630	126	19	19	99	5	268
5%	3,020	151	79	79	416	23	748
20%	4,320	864	130	130	680	32	1,836
10%	6,610	661	182	182	954	50	2,028
10%	8,200	820	226	226	1184	62	2,516
5%	4,800	240	126	126	662	36	1,190
5%	56,200	2810	1475	1475	7745	422	13,927
5%	14,000	700	368	368	1929	105	3,469
5%	60,000	3000	1575	1575	8269	450	14,869
5%	35,000	1750	919	919	4823	263	8,673
5%	13,200	660	347	347	1819	99	3,271
5%	3,200	160	84	84	441	24	793
5%	15,000	750	394	394	2067	113	3,717
5%	2,000	100	53	53	276	15	496
10%	90,000	9000	2475	2475	12994	675	27,619
10%	6,600	660	182	182	953	50	2,025
5%	15,000	750	394	394	2067	113	3,717
5%	6,600	330	173	173	910	50	1,636
5%	2,000	100	53	53	276	15	496
-							
20%	10,970	2194	329	329	1728	82	4,662
5%	306,590	15330	8048	8048	42252	2299	75,977
5%	106,700	5335	2801	2801	14705	800	26,442
5%	60,000	3000	1575	1575	8269	450	14,869
5%	91,400	4570	2399	2399	12596	686	22,650
5%	68,000	3400	1785	1785	9371	510	16,851
5%	30,000	1500	788	788	4134	225	7,434
5%	10,000	500	263	263	1378	75	2,478
20%	196,800	39360	5904	5904	30996	1476	83,640
20%	65,600	13120	1968	1968	10332	492	27,880

11	Rotary jet agitator in light crude oil tank	piece	3
12	Rotary jet agitator in heavy crude oil tank	piece	1
13	Tank Insulation	m <sup>2</sup>	240
14	Storage tank anti-corrosion material	m <sup>3</sup>	70180
15	Carbon Steel Pipe	meter	5052
16	Process valve	piece	183
17	Pipe fittings	piece	554
18	Pipe Gasket	piece	422
19	Pipe flange	piece	416
20	Pipe support hanger	ton	0.46
21	Steel plate	ton	6.77
22	Pipe Expansion Joint	piece	4
23	Bolt	set	3286
24	Pipeline anti-corrosion materials	ton	0.98
25	Pipe support hanger	meter	960
26	Support and hanger attachment bolts	set	8800
27	Safety valve	piece	7
28	Pipe electrostatic grounding wire	piece	35
29	Electrical distribution box	piece	1
30	Electrical cable	meter	1475
31	Lighting distribution box	piece	1
32	Explosion-proof lamps	set	1
33	Lightning protection ground electrode	piece	32
34	Lightning protection ground wire	meter	1536
35	Bimetallic thermometer	piece	9
36	Integrated temperature transmitter	piece	1
37	Multipoint Temperature Transmitter	piece	4
38	Pressure gauge, vacuum gauge	piece	18

21,600	20%	4320	648	648	3402	162	9,180
7,200	20%	1440	216	216	1134	54	3,060
14,470	20%	2894	434	434	2279	109	6,150
20,460	20%	4092	614	614	3222	153	8,696
15,460	5%	773	406	406	2131	116	3,831
2,800	10%	280	77	77	404	21	859
430	20%	86	13	13	68	3	183
400	5%	20	11	11	55	3	99
520	20%	104	16	16	82	4	221
1,000	20%	200	30	30	158	8	425
13,800	5%	690	362	362	1902	104	3,420
21,200	20%	4240	636	636	3339	159	9,010
51,400	20%	10280	1542	1542	8096	386	21,845
1,000	20%	200	30	30	158	8	425
3,200	20%	640	96	96	504	24	1,360
27,600	20%	5520	828	828	4347	207	11,730
10,600	10%	1060	292	292	1530	80	3,253
1,200	20%	240	36	36	189	9	510
3,800	20%	760	114	114	599	29	1,615
29,200	20%	5840	876	876	4599	219	12,410
3,800	20%	760	114	114	599	29	1,615
37,000	20%	7400	1110	1110	5828	278	15,725
7,600	20%	1520	228	228	1197	57	3,230
42,400	20%	8480	1272	1272	6678	318	18,020
4,500	5%	225	118	118	620	34	1,115
2,000	5%	100	53	53	276	15	496
32,000	5%	1600	840	840	4410	240	7,930
9,000	5%	450	236	236	1240	68	2,230

39	Smart Differential Pressure Transmitter	piece	4	
40	Ultrasonic Level Meter	piece	8	
41	Radar Level Gauge	piece	4	
42	Combustible and toxic gas detectors	piece	22	
43	Pneumatic control valve	piece	1	
44	Pneumatic switch valve	piece	20	
45	Electric switch valve	piece	4	
46	Switch button	meter	4	
47	Instrumentation pipelines	meter	2789	
48	Instrument valve	piece	52	
49	Instrumentation cable	meter	51524	
50	Water supply and drainage pipeline	meter	6001	
51	Water supply and drainage valve	piece	144	
52	Water supply and drainage pipeline insulation and anti-corrosion materials	m <sup>2</sup>	1850	
<b>Gasoline tank farm</b>				
1	Steel Structure	ton	76.03	
2	Gasoline Oil Tank Plates	ton	980	
3	Raw naphtha tank plate	ton	242	
4	Refined Naphtha Tank Plate	ton	90	
5	Light slur oil tank plate	ton	178	
6	MTBE Tank plate	ton	142	
7	Refined Diesel Tank Plate	ton	140	
8	Gasoline Loading Pump	piece	2	
9	Gasoline truck /ship loading pump	piece	1	
10	Naphtha Feed Pump	piece	2	
11	Refined naphtha start-up pump	piece	1	
12	Light slur oil pump	piece	1	
13	Refined diesel loading pump	piece	1	
14	Naphtha start-up pump	piece	1	
15	Gasoline Tank bottom Sampler	piece	4	

8,000	5%	400	210	210	1103	60	1,983
16,000	5%	800	420	420	2205	120	3,965
40,000	5%	2000	1050	1050	5513	300	9,913
66,000	5%	3300	1733	1733	9096	495	16,356
20,000	10%	2000	550	550	2888	150	6,138
400,000	10%	40000	11000	11000	57750	3000	122,750
32,000	10%	3200	880	880	4620	240	9,820
400	10%	40	11	11	58	3	123
30,000	5%	1500	788	788	4134	225	7,434
10,400	10%	1040	286	286	1502	78	3,192
206,000	20%	41200	6180	6180	32445	1545	87,550
187,400	20%	37480	5622	5622	29516	1406	79,645
60,400	10%	6040	1661	1661	8720	453	18,535
17,600	20%	3520	528	528	2772	132	7,480
90,100	20%	18020	2703	2703	14191	676	38,293
152,210	5%	7611	3996	3996	20976	1142	37,720
37,590	5%	1880	987	987	5180	282	9,315
13,980	5%	699	367	367	1927	105	3,464
27,650	5%	1383	726	726	3811	207	6,852
22,050	5%	1103	579	579	3039	165	5,464
21,740	5%	1087	571	571	2996	163	5,387
44,000	5%	2200	1155	1155	6064	330	10,904
70,000	5%	3500	1838	1838	9647	525	17,347
140,000	5%	7000	3675	3675	19294	1050	34,694
40,000	5%	2000	1050	1050	5513	300	9,913
20,000	5%	1000	525	525	2756	150	4,956
40,000	5%	2000	1050	1050	5513	300	9,913
31,200	5%	1560	819	819	4300	234	7,732
40,000	5%	2000	1050	1050	5513	300	9,913

16	Raw Naphtha Tank Bottom Sampler	piece	2	
17	Refined Naphtha Tank Bottom Sampler	piece	1	
18	Light slur oil tank bottom sampler	piece	2	
19	Methanol tank bottom sampler	piece	2	
20	Refined Diesel Tank bottom Sampler	piece	2	
21	Gasoline Tank overhead Flame Arrestor	piece	4	
22	Gasoline static mixer	piece	1	
23	Rotary jet agitator in gasoline tank	piece	4	
24	Raw naphtha tank breathing valve	piece	4	
25	Refined Naphtha Pipe Breathing Valve	piece	2	
26	Light slur oil tank breathing valve	piece	4	
27	Methanol tank breathing valve	piece	4	
28	Refined Diesel Tank Breathing Valve	piece	4	
29	Raw naphtha tank nitrogen sealing valve	piece	2	
30	Refined naphtha tank nitrogen sealing valve	piece	1	
31	Nitrogen sealing valve for light slur oil tank	piece	2	
32	Refined diesel tank nitrogen seal valve	piece	2	
33	Gasoline Tank Dehydrator	piece	4	
34	Raw naphtha tank dehydrator	piece	2	
35	Refined Naphtha Tank Dehydrator	piece	1	
36	Light slur oil tank dehydrator	piece	2	
37	Refined Diesel Tank Dehydrator	piece	2	
38	Raw naphtha tank emergency relief valve	piece	2	

20,000	5%	1000	525	525	2756	150	4,956
10,000	5%	500	263	263	1378	75	2,478
20,000	5%	1000	525	525	2756	150	4,956
20,000	5%	1000	525	525	2756	150	4,956
20,000	5%	1000	525	525	2756	150	4,956
28,400	5%	1420	746	746	3914	213	7,038
10,000	5%	500	263	263	1378	75	2,478
28,800	20%	5760	864	864	4536	216	12,240
25,600	10%	2560	704	704	3696	192	7,856
14,800	10%	1480	407	407	2137	111	4,542
25,600	10%	2560	704	704	3696	192	7,856
25,600	10%	2560	704	704	3696	192	7,856
25,600	10%	2560	704	704	3696	192	7,856
9,200	10%	920	253	253	1328	69	2,823
4,600	10%	460	127	127	664	35	1,412
9,200	20%	1840	276	276	1449	69	3,910
9,200	10%	920	253	253	1328	69	2,823
28,800	5%	1440	756	756	3969	216	7,137
14,400	5%	720	378	378	1985	108	3,569
7,200	5%	360	189	189	992	54	1,784
14,400	5%	720	378	378	1985	108	3,569
14,400	5%	720	378	378	1985	108	3,569
20,000	10%	2000	550	550	2888	150	6,138



No.	Description	Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
39	Refined naphtha tank emergency relief valve	piece	1										1000	275	275	1444	75		3,069	
40	Emergency pressure relief valve for light slur oil tank	piece	2										4000	600	600	3150	150		8,500	
41	Methanol tank emergency relief valve	piece	2										2000	550	550	2888	150		6,138	
42	Refined Diesel Tank Emergency Relief Valve	piece	2										2000	550	550	2888	150		6,138	
43	Storage tank anti-corrosion and insulation materials	m <sup>3</sup>	55350																	
44	Carbon Steel Pipe	m <sup>3</sup>	4254										934	490	490	2573	140		4,627	
45	Process valve	piece	377										1130	311	311	1631	85		3,468	
46	Pipe fittings	piece	1097										172	26	26	135	6		366	
47	Pipe Expansion Joint	piece	6										320	48	48	252	12		680	
48	Pipe flange	piece	737										184	28	28	145	7		391	
49	Pipe Gasket	piece	951										45	23	23	123	7		221	
50	Bolt	set	7000										1094	164	164	862	41		2,325	
51	Pipe Insulation Materials	m <sup>3</sup>	7										1680	252	252	1323	63		3,570	
52	Pipeline anti-corrosion material	m <sup>3</sup>	2085										56	8	8	44	2		119	
53	Pipe support hanger	ton	9.7										3960	594	594	3119	149		8,415	
54	Safety valve	piece	26										3440	946	946	4967	258		10,557	
55	Pipe Insulation Materials	m <sup>3</sup>	7										1680	252	252	1323	63		3,570	
56	Pipeline anti-corrosion material	m <sup>3</sup>	4484										760	114	114	599	29		1,615	
57	Electrical distribution box	piece	2										1520	228	228	1197	57		3,230	
58	Electrical cable	meter	670										2640	396	396	2079	99		5,610	
59	Lighting fixtures	set	1										7880	1182	1182	6206	296		16,745	
60	Lightning protection ground electrode	piece	31										1480	222	222	1166	56		3,145	
61	Lightning protection ground wire	meter	36										200	30	30	158	8		425	
62	Bimetallic thermometer	piece	14										350	184	184	965	53		1,735	
63	Integrated temperature transmitter	piece	9										900	473	473	2481	135		4,461	
64	Multipoint Temperature Transmitter	piece	4										1600	840	840	4410	240		7,930	
65	Pressure gauge, vacuum gauge	piece	39										975	512	512	2687	146		4,832	

66	Smart Pressure Transmitter	piece	14	
67	Intelligent Differential Pressure Liquid Level Transmitter	piece	13	
68	Radar Level Gauge	piece	13	
69	Combustible and toxic gas detectors	piece	17	
70	Pneumatic switch valve	piece	34	
71	Electric switch valve	piece	8	
72	Switch button	piece	13	
73	Instrumentation line	meter	3300	
74	Instrument valve	piece	88	
75	Instrumentation cable	meter	38440	
76	Water supply and drainage pipeline	meter	5379	
77	Water supply and drainage valve	piece	232	
78	Water supply and drainage pipeline insulation and anti-corrosion materials	m <sup>2</sup>	21183	
79	Fire extinguisher	set	24	
80	Air bubble generator	set	34	
<b>Diesel Tank Farm</b>				
1	Steel Structure	ton	22.69	
2	Diesel Tank Plate	ton	938	
3	Heavy oil tank plate	ton	1016	
4	Diesel truck/Ship Loading Pump	piece	2	
5	Heavy oil feed pump	piece	1	
6	Fuel oil pump	piece	1	
7	Diesel tank flame arrester	piece	4	
8	Diesel tank flame arrester	piece	2	
9	Diesel Tank Bottom Sampler	piece	3	
10	Heavy Oil Tank Bottom Sampler	piece	3	
11	Diesel Tank Rotary Jet Agitator	piece	3	
12	Heavy oil tank rotary jet mixer	piece	3	
13	Diesel Tank Dehydrator	piece	3	
14	Heavy Oil Tank Dehydrator	piece	3	

56,000	5%	2800	1470	1470	1470	7718	420	13,878
52,000	5%	2600	1365	1365	1365	7166	390	12,886
130,000	5%	6500	3413	3413	3413	17916	975	32,216
51,000	5%	2550	1339	1339	1339	7028	383	12,638
680,000	10%	68000	18700	18700	18700	98175	5100	208,675
160,000	10%	16000	4400	4400	4400	23100	1200	49,100
1,300	5%	65	34	34	34	179	10	322
35,400	5%	1770	929	929	929	4879	266	8,773
17,600	10%	1760	484	484	484	2541	132	5,401
153,600	20%	30720	4608	4608	4608	24192	1152	65,280
152,600	20%	30520	4578	4578	4578	24035	1145	64,855
69,000	10%	6900	1898	1898	1898	9962	518	21,174
26,200	20%	5240	786	786	786	4127	197	11,135
9,600	5%	480	252	252	252	1323	72	2,379
27,200	5%	1360	714	714	714	3749	204	6,741
-	-	-	-	-	-	-	-	-
26,900	20%	5380	807	807	807	4237	202	11,433
145,690	5%	7285	3824	3824	3824	20078	1093	36,104
157,810	5%	7891	4143	4143	4143	21748	1184	39,107
50,000	5%	2500	1313	1313	1313	6891	375	12,391
62,200	5%	3110	1633	1633	1633	8572	467	15,414
30,000	5%	1500	788	788	788	4134	225	7,434
28,400	5%	1420	746	746	746	3914	213	7,038
14,200	5%	710	373	373	373	1957	107	3,519
17,400	5%	870	457	457	457	2398	131	4,312
17,400	5%	870	457	457	457	2398	131	4,312
21,600	5%	1080	567	567	567	2977	162	5,353
21,600	5%	1080	567	567	567	2977	162	5,353
196,800	5%	9840	5166	5166	5166	27122	1476	48,770
21,600	5%	1080	567	567	567	2977	162	5,353

15	Tank Insulation	m <sup>3</sup>	410
16	Storage tank anti-corrosion material	m <sup>3</sup>	52275
17	Carbon Steel Pipe	meter	5368
18	Process valve	piece	404
19	Pipe fittings	piece	895
20	Pipe Expansion Joint	piece	3
21	Pipe flange	piece	805
22	Pipe Gasket	piece	882
23	Bolt	set	5332
24	Pipe Insulation Materials	m <sup>3</sup>	66
25	Pipeline anti-corrosion material	m <sup>3</sup>	1750
26	Safety valve	piece	13
27	Pipe electrostatic grounding	piece	30
28	Electrical cable	meter	840
29	Lightning protection ground electrode	piece	18
30	Lightning protection ground wire	meter	1650
31	Bimetallic thermometer	piece	8
32	Integrated temperature transmitter	piece	6
33	Pressure gauge, vacuum gauge	piece	21
34	Differential pressure level transmitter	piece	3
35	Ultrasonic Level Meter	piece	6
36	Radar Level Gauge	piece	6
37	Pneumatic control valve	piece	3
38	Pneumatic switch valve	piece	24
39	Electric switch valve	piece	2
40	Switch button	piece	6
41	Instrumentation line	meter	2477
42	Instrument valve	piece	64
43	Instrumentation cable	meter	37670
44	Water supply and drainage pipeline	meter	5043

24,720	5%	1236	649	649	3407	185	6,126
15,240	20%	3048	457	457	2400	114	6,477
8,300	5%	415	218	218	1144	62	2,057
8,750	10%	875	241	241	1263	66	2,685
700	20%	140	21	21	110	5	298
800	20%	160	24	24	126	6	340
1,010	20%	202	30	30	159	8	429
830	5%	42	22	22	114	6	206
4,170	20%	834	125	125	657	31	1,772
79,200	20%	15840	2376	2376	12474	594	33,660
200	20%	40	6	6	32	2	85
16,400	10%	1640	451	451	2368	123	5,033
400	20%	80	12	12	63	3	170
4,800	20%	960	144	144	756	36	2,040
4,400	20%	880	132	132	693	33	1,870
45,800	20%	9160	1374	1374	7214	344	19,465
4,000	5%	200	105	105	551	30	991
12,000	5%	600	315	315	1654	90	2,974
10,600	5%	530	278	278	1461	80	2,627
6,000	5%	300	158	158	827	45	1,487
12,000	5%	600	315	315	1654	90	2,974
60,000	5%	3000	1575	1575	8269	450	14,869
60,000	10%	6000	1650	1650	8663	450	18,413
480,000	10%	48000	13200	13200	69300	3600	147,300
40,000	10%	4000	1100	1100	5775	300	12,275
600	5%	30	16	16	83	5	149
26,600	5%	1330	698	698	3666	200	6,592
12,800	10%	1280	352	352	1848	96	3,928
150,600	20%	30120	4518	4518	23720	1130	64,005
164,600	20%	32920	4938	4938	25925	1235	69,955

45	Water supply and drainage valve	piece	258
46	Water supply and drainage pipeline anti-corrosion insulation	m <sup>2</sup>	1200
47	Fire extinguisher	piece	24
48	Water curtain sprinkler	piece	624
<b>heavy Oil tank farm</b>			
1	Steel Structure	ton	17.97
2	Heavy slur oil tank plate	ton	188.4
3	Heavy slur oil pump	piece	1
4	fuel oil truck loading pump	piece	1
5	Heavy slur oil tank sampler	piece	2
6	Heavy slur oil tank dehydrator	piece	2
7	Storage tank anti-corrosion and insulation materials	m <sup>2</sup>	5500
8	Carbon Steel Pipe	meter	1223
9	Pipe fittings	piece	641
10	Pipe flange	piece	524
11	Pipe Gasket	piece	553
12	Bolt	set	2888
13	Safety valve	piece	4
14	Insulation materials	m <sup>3</sup>	20
15	Anti-corrosion materials	ton	0.16
16	Pipe support hanger	ton	1.55
17	Pipe electrostatic grounding	places	10
18	Electrical explosion-proof maintenance box	piece	2
19	Electrical cable	meter	2905
20	Explosion-proof lamps	set	5
21	Lightning protection ground wire	meter	40
22	Lightning protection ground electrode	piece	6
23	Bimetallic thermometer	piece	4
24	Integrated temperature transmitter	piece	2
25	Pressure gauge, vacuum gauge	piece	8

69,200	10%	6920	1903	1903	9991	519	21,236
1,400	20%	280	42	42	221	11	595
9,600	5%	480	252	252	1323	72	2,379
26,400	5%	1320	693	693	3638	198	6,542
		0	0	0	0	0	
21,300	20%	4260	639	639	3355	160	9,053
19,130	5%	957	502	502	2636	143	4,741
40,000	5%	2000	1050	1050	5513	300	9,913
28,200	5%	1410	740	740	3886	212	6,988
11,600	5%	580	305	305	1599	87	2,875
14,400	5%	720	378	378	1985	108	3,569
32,000	5%	1600	840	840	4410	240	7,930
1,300	5%	65	34	34	179	10	322
500	20%	100	15	15	79	4	213
660	20%	132	20	20	104	5	281
520	5%	26	14	14	72	4	129
2,260	20%	452	68	68	356	17	961
250	10%	25	7	7	36	2	77
24,000	20%	4800	720	720	3780	180	10,200
120	20%	24	4	4	19	1	51
3,200	20%	640	96	96	504	24	1,360
200	20%	40	6	6	32	2	85
7,600	20%	1520	228	228	1197	57	3,230
57,200	20%	11440	1716	1716	9009	429	24,310
42,200	20%	8440	1266	1266	6647	317	17,935
1,200	20%	240	36	36	189	9	510
1,400	20%	280	42	42	221	11	595
2,000	5%	100	53	53	276	15	496
4,000	5%	200	105	105	551	30	991
4,000	5%	200	105	105	551	30	991

26	Ultrasonic Level Meter	piece	4	
27	Radar Level Gauge / Guided Wave Radar Level Gauge	piece	2	
28	Pneumatic control valve below DN50	piece	2	
29	Pneumatic gate valve (parallel double gate)	piece	2	
30	Explosion-proof operating column	piece	2	
31	Instrumentation line	meter	346	
32	Instrument valve	piece	8	
33	Instrumentation cable	meter	10819	
34	Water supply and drainage pipeline	meter	252	
35	Water supply and drainage valve	piece	22	
36	Water supply and drainage pipeline insulation and anti-corrosion	m <sup>2</sup>	214	
37	Fire extinguisher	set	10	
38	Foam generator	piece	3	
<b>spherical tank farm</b>				
1	Steel Structure	ton	40.25	
2	Spherical Tank plate	ton	602	
3	Truck loading pump	piece	2	
4	Water Injection pump	piece	1	
5	Water Separation Tank	piece	2	
6	Liquefied Gas Pipeline Sampler	piece	2	
7	Insulation and fireproof material for spherical tank	ton	1	
8	Carbon Steel Pipe	meter	839	
9	process valve	piece	144	
10	pipe fittings	piece	337	
11	Pipe flange	piece	254	
12	Pipe Gasket	piece	303	
13	Bolt	set	2076	
14	Pipe support hanger	ton	1.63	

8,000	5%	400	210	210	1103	60	1,983
20,000	5%	1000	525	525	2756	150	4,956
40,000	10%	4000	1100	1100	5775	300	12,275
400,000	10%	40000	11000	11000	57750	3000	122,750
2,000	5%	100	53	53	276	15	496
3,800	5%	190	100	100	524	29	942
16,000	10%	1600	440	440	2310	120	4,910
43,200	20%	8640	1296	1296	6804	324	18,360
8,800	20%	1760	264	264	1386	66	3,740
3,800	10%	380	105	105	549	29	1,166
3,800	20%	760	114	114	599	29	1,615
4,000	5%	200	105	105	551	30	991
2,400	5%	120	63	63	331	18	595
47,700	20%	9540	1431	1431	7513	358	20,273
7,130,000	5%	356500	187163	187163	982603	53475	1,766,903
104,000	5%	5200	2730	2730	14333	780	25,773
32,800	5%	1640	861	861	4520	246	8,128
8,400	20%	1680	252	252	1323	63	3,570
7,600	5%	380	200	200	1047	57	1,883
47,000	20%	9400	1410	1410	7403	353	19,975
2,200	5%	110	58	58	303	17	545
3,680	10%	368	101	101	531	28	1,129
260	20%	52	8	8	41	2	111
320	20%	64	10	10	50	2	136
280	5%	14	7	7	39	2	69
1,620	20%	324	49	49	255	12	689
3,400	20%	680	102	102	536	26	1,445

37,200	10%	3720	1023	1023	5371	279	11,416
200	20%	40	6	6	32	2	85
12,200	20%	2440	366	366	1922	92	5,185
1,400	20%	280	42	42	221	11	595
4,000	20%	800	120	120	630	30	1,700
4,000	5%	200	105	105	551	30	991
17,200	5%	860	452	452	2370	129	4,262
32,000	5%	1600	840	840	4410	240	7,930
2,000	5%	100	53	53	276	15	496
12,000	5%	600	315	315	1654	90	2,974
120,000	5%	6000	3150	3150	16538	900	29,738
18,000	5%	900	473	473	2481	135	4,461
100,000	5%	5000	2625	2625	13781	750	24,781
4,000	5%	200	105	105	551	30	991
6,600	5%	330	173	173	910	50	1,636
54,000	10%	5400	1485	1485	7796	405	16,571
107,800	20%	21560	3234	3234	16979	809	45,815
24,000	5%	1200	630	630	3308	180	5,948
60,600	10%	6060	1667	1667	8749	455	18,597
4,800	20%	960	144	144	756	36	2,040
1,600	5%	80	42	42	221	12	397
157,200	5%	7860	4127	4127	21664	1179	38,956
2,000	5%	100	53	53	276	15	496
12,000	5%	600	315	315	1654	90	2,974
24,000	5%	1200	630	630	3308	180	5,948
36,000	5%	1800	945	945	4961	270	8,921
108,000	5%	5400	2835	2835	14884	810	26,764
4,000	5%	200	105	105	551	30	991
16,000	5%	800	420	420	2205	120	3,965

15	safety valve	piece	10
16	Pipeline anti-corrosion material	m	1489
17	Pipe electrostatic grounding wire	meter	440
18	Pipe ground electrode	piece	6
19	Bimetal Thermometer	piece	8
20	Integrated temperature transmitter	piece	2
21	pressure gauge	piece	34
22	Smart Pressure Transmitter	piece	8
23	Magnetic float level gauge	piece	2
24	Externally attached ultrasonic level gauge	piece	4
25	Servo level gauge	piece	2
26	Combustible and toxic gas detectors	piece	6
27	Pneumatic switch valve	piece	10
28	Explosion-proof operating column	piece	4
29	Instrumentation line	meter	604
30	Valve	piece	27
31	Instrumentation cable	meter	27000
32	water supply and drainage pipeline	meter	318
33	Water supply and drainage valve	piece	50
34	Water supply and drainage pipeline anti-corrosion insulation	m	645
35	Fire extinguisher	piece	4
36	Spray cooling facility	set	2
<b>Faire</b>			
1	First stage burner group	set	1
2	Second stage burner group	set	6
3	Third stage burner group	set	12
4	Forth stage burner group	set	18
5	Fifth stage burner group	set	54
6	Sour Gas Burners	piece	1
7	Ground pipe	set	1

8	High voltage generator			
9	High energy igniter			
10	Quartz Support insulation			
11	Combined ignition electrode			
12	Dedicated high-voltage cable 10 meters	set	5	
13	Temperature-resistant high-voltage bare wire 5 meters			
14	Energy saving longlasting light			
15	PLC control cabinet	piece	1	
16	Explosion-proof solenoid valve set	set	1	
17	Water replenishment solenoid valve set	set	1	
18	Magnetic flap level gauge	piece	2	
19	Pressure Transmitters	piece	3	
20	Flame detector	piece	3	
21	flammable toxic gas alarm	piece	3	
22	Pressure gauge	piece	8	
23	Thermometer	piece	2	
24	Sewage pump	piece	1	
25	Thermocouple	piece	6	
26	butterfly valve	piece		
27	gate valve	piece	43	
28	Stainless steel Globe Valve	piece	7	
29	Check valve	piece	2	
30	Trap	piece	8	
31	Socket Weld Ball Valve	piece	3	
32	Ball valve	piece	6	
33	Instrument air ball valve	piece	4	
34	Drain ball valve	piece	8	
35	pressure gauge needle valve	piece	8	
36	Pneumatic Butterfly Valve	piece	4	
37	Rupture disc	piece	4	
38	Basket strainer	piece	1	

	0	1095	1095	5749	329	8,267
	0	0	0	0	0	-
	0	0	0	0	0	-
	0	0	0	0	0	-
43,800	0	0	0	0	0	-
20%	0	0	0	0	0	-
	0	0	0	0	0	-
	0	0	0	0	0	-
	0	0	0	0	0	-
10,000	500	263	263	1378	75	2,478
5%	720	198	198	1040	54	2,210
10%	260	72	72	375	20	798
2,600	200	105	105	551	30	991
4,000	300	158	158	827	45	1,487
6,000	300	158	158	827	45	1,487
6,000	450	236	236	1240	68	2,230
9,000	200	105	105	551	30	991
4,000	50	26	26	138	8	248
1,000	600	315	315	1654	90	2,974
12,000	70	37	37	193	11	347
1,400	1120	308	308	1617	84	3,437
11,200	220	61	61	318	17	675
2,200	140	39	39	202	11	430
1,400	140	39	39	202	11	430
1,400	80	42	42	221	12	397
1,600	60	17	17	87	5	184
600	60	17	17	87	5	184
600	60	17	17	87	5	184
600	120	33	33	173	9	368
1,200	120	33	33	173	9	368
1,200	1780	490	490	2570	134	5,462
17,800	140	74	74	386	21	694
2,800	60	32	32	165	9	297
1,200						

39	Y filter	piece	1	
40	Flame arrester	piece	5	
41	Process pipeline	meter	408	
42	Flange	piece	16	
43	Pipe Elbow	piece	22	
44	Torch barrel	ton	166	
<b>Oil loading and off-loading facilities</b>				
1	Steel Structure	ton	5.6	
2	loading skid	set	20	
3	Carbon Steel Pipe	meter	1377	
4	Valves and others	piece	129	
5	electrical cable	meter	1776	
6	Electrical cable tray	meter	260	
7	Explosion-proof lighting fixtures	set	20	
8	Lightning protection ground wire	meter	240	
9	Lightning protection ground electrode	piece	12	
10	Fire alarm system	set	1	
11	Industrial TV Monitoring System	set	1	
12	Water supply and drainage pipes and anti-corrosion	meter	230	
<b>Whole plant process and heat pipe network</b>				
1	Steel Structure	ton	2379	
2	Carbon Steel Pipe	meter	110000	
3	Alloy Steel Pipe	meter	577	
4	Stainless steel pipe	meter	123	
5	Valves and others	piece	720	
6	Pipe electrostatic grounding	place	118	
7	Instrumentation	piece	1353	
8	Instrumentation cable	meter	152350	
<b>central control room</b>				
1	UPS power supply unit	set	1	
2	Power distribution box	piece	2	
3	Web server	piece	1	
4	Operation station host	piece	40	

1,000	5%	50	26	26	138	8	248
35,400	5%	1770	929	929	4879	266	8,773
1,200	5%	60	32	32	165	9	297
430	20%	86	13	13	68	3	183
400	20%	80	12	12	63	3	170
393,800	5%	19690	10337	10337	54271	2954	97,589
5,700	20%	1140	171	171	898	43	2,423
1,875,000	5%	93750	49219	49219	258398	14063	464,648
3,580	5%	179	94	94	493	27	887
1,220	10%	122	34	34	176	9	374
34,800	20%	6960	1044	1044	5481	261	14,790
7,200	20%	1440	216	216	1134	54	3,060
26,600	20%	5320	798	798	4190	200	11,305
6,600	20%	1320	198	198	1040	50	2,805
2,800	20%	560	84	84	441	21	1,190
4,000	5%	200	105	105	551	30	991
4,000	5%	200	105	105	551	30	991
4,600	20%	920	138	138	725	35	1,955
2,819,300	20%	563860	84579	84579	444040	21145	1,198,203
286,100	5%	14305	7510	7510	39428	2146	70,899
40,420	5%	2021	1061	1061	5570	303	10,017
3,380	5%	169	89	89	466	25	838
18,000	10%	1800	495	495	2599	135	5,524
4,000	20%	800	120	120	630	30	1,700
46,400	5%	2320	1218	1218	6395	348	11,499
609,400	20%	121880	18282	18282	95981	4571	258,995
234,400	5%	11720	6153	6153	32303	1758	58,087
4,000	5%	200	105	105	551	30	991
11,000	5%	550	289	289	1516	83	2,726
87,600	5%	4380	2300	2300	12072	657	21,708



5	monitor	piece	40
6	console desk	piece	40
7	Printer	piece	2
8	Engineer station	piece	2
9	Monitor	piece	2
10	History record workstation	piece	1
11	Monitor	piece	1
12	SIS operation station	piece	1
13	Monitor	piece	1
14	CCS operation station	piece	1
15	Monitor	piece	1
16	Factory management network interface	piece	1
17	Monitor	piece	1
18	DCS Cabinet	piece	20
19	Network switch	piece	20
20	Network Cabinets	piece	1
21	Safety Barrier Wiring Cabinet	piece	10
22	Safety Barrier	piece	50
23	Isolator	piece	20
24	Surge protector	piece	20
25	Telephone system	set	56
26	Integrated wiring system	set	1
27	Industrial TV Monitoring System	set	1
28	Fire alarm system	set	1
29	Power and Control Cables	meter	4830
30	Trough cable tray	meter	70
31	lighting fixtures	set	243
32	electric wire	meter	5790
33	Galvanized steel	meter	6130
34	Galvanized flat steel	meter	770
<b>1# Cabinet Room</b>			
1	Breaker box	piece	5
2	UPS power supply unit	set	1
3	Engineer station	set	1

16,000	5%	800	420	420	2205	120	3,965
33,800	20%	6760	1014	1014	5324	254	14,365
4,000	20%	800	120	120	630	30	1,700
4,000	5%	200	105	105	551	30	991
800	5%	40	21	21	110	6	198
2,000	5%	100	53	53	276	15	496
400	5%	20	11	11	55	3	99
2,000	5%	100	53	53	276	15	496
400	5%	20	11	11	55	3	99
2,000	5%	100	53	53	276	15	496
400	5%	20	11	11	55	3	99
10,000	5%	500	263	263	1378	75	2,478
400	5%	20	11	11	55	3	99
40,000	5%	2000	1050	1050	5513	300	9,913
10,000	10%	1000	275	275	1444	75	3,069
2,000	10%	200	55	55	289	15	614
20,000	10%	2000	550	550	2888	150	6,138
20,000	5%	1000	525	525	2756	150	4,956
8,000	5%	400	210	210	1103	60	1,983
8,000	5%	400	210	210	1103	60	1,983
4,000	10%	400	110	110	578	30	1,228
4,000	20%	800	120	120	630	30	1,700
4,000	5%	200	105	105	551	30	991
4,000	5%	200	105	105	551	30	991
152,800	20%	30560	4584	4584	24066	1146	64,940
2,000	20%	400	60	60	315	15	850
11,400	20%	2280	342	342	1796	86	4,845
9,000	20%	1800	270	270	1418	68	3,825
26,000	5%	1300	683	683	3583	195	6,443
3,600	5%	180	95	95	496	27	892
		0	0	0	0	0	-
2,000	20%	400	60	60	315	15	850
234,400	5%	11720	6153	6153	32303	1758	58,087
2,000	5%	100	53	53	276	15	496

4	Operation station	set	3	
5	Power cable	meter	1155	
6	Cable tray	meter	15	
7	Lighting distribution box	piece	2	
8	Control box	piece	1	
9	Dual CFLs	set	73	
10	Electric wire	meter	1955	
11	Combustible and toxic gas detectors	piece	2	
12	Fire alarm system	set	1	
13	Industrial TV Surveillance System	set	1	
14	Integrated wiring system	set	1	
15	Amplified intercom system	set	1	
16	Telephone system	set	1	
17	Galvanized steel	meter	796	
18	Galvanized angle steel	meter	710	
19	Bolt	set	1014	
20	steel plate	ton	0.096	
21	Earth wire	meter	1650	
22	fire extinguisher	piece	10	
23	fire extinguisher box	piece	5	
24	Cart Fire Extinguisher	piece	4	
<b>Start-up Boiler</b>				
1	Steel Structure	ton	198	
2	Boiler	piece	1	
3	Steel flue pipe	piece	1	
4	Continuous sewage range	piece	1	
5	Regularly drain and expansion container	piece	1	
6	fuel gas separator	piece	1	
7	Water Feed Pump	piece	3	
8	Boiler blower	piece	1	
9	Induced draft fan	piece	1	
	Steam turbine generator set	set	1	
10	Blower inlet muffler	piece	2	

6,000	5%	300	158	158	827	45	1,487
36,600	20%	7320	1098	1098	5765	275	15,555
400	20%	80	12	12	63	3	170
4,000	20%	800	120	120	630	30	1,700
2,000	20%	400	60	60	315	15	850
3,400	5%	170	89	89	469	26	843
3,000	20%	600	90	90	473	23	1,275
4,000	5%	200	105	105	551	30	991
4,000	5%	200	105	105	551	30	991
4,000	5%	200	105	105	551	30	991
4,000	20%	800	120	120	630	30	1,700
6,000	5%	300	158	158	827	45	1,487
4,000	10%	400	110	110	578	30	1,228
400	5%	20	11	11	55	3	99
8,400	20%	1680	252	252	1323	63	3,570
4,800	20%	960	144	144	756	36	2,040
200	5%	10	5	5	28	2	50
7,800	20%	1560	234	234	1229	59	3,315
2,000	5%	100	53	53	276	15	496
500	5%	25	13	13	69	4	124
15,600	5%	780	410	410	2150	117	3,866
234,600	20%	46920	7038	7038	36950	1760	99,705
2,812,400	5%	140620	0	0	0	21093	161,713
20,400	5%	1020	536	536	2811	153	5,055
4,200	5%	210	110	110	579	32	1,041
4,200	20%	840	126	126	662	32	1,785
4,200	5%	210	0	0	0	32	242
156,000	5%	7800	4095	4095	21499	1170	38,659
10,000	5%	500	0	0	0	75	575
10,000	5%	500	263	263	1378	75	2,478
6,250,000	5%	312500	0	0	0	46875	359,375
4,000	5%	200	0	0	0	30	230

11	Drum safety valve exhaust muffler	piece	2
12	Boiler fire exhaust muffler	piece	1
13	Boiler superheated gas safety valve exhaust muffler	piece	1
14	Desuperheater pressure reducer safety valve exhaust muffler	piece	1
15	Desuperheater	piece	1
16	Phosphate complete set of dosing device	set	1
17	Ammonia dosing device	set	1
18	Deaerator	piece	1
19	Quadruple Sampling Cooler	piece	1
20	Flame arrester	piece	1
21	Furnace top maintenance electric hoist	piece	1
22	Drum safety valve	piece	2
23	Boiler high superheater safety valve	piece	2
24	Deaerator safety valve	piece	2
25	Continuous Expansion Container Safety Valve	piece	1
26	Desuperheater pressure reducer safety valve exhaust muffler	piece	1
27	Carbon Steel Pipe	meter	1286
28	pipe fittings	piece	726
29	Valves	piece	253
30	Flange	piece	353
31	Gasket	piece	353
32	Bolt	set	1892
33	pipe support hanger	ton	0.04
34	Platform Ladder Material	ton	3.5
35	Insulation materials	m³	45
36	Anti-corrosion materials	ton	0.01
37	Round explosion-proof door	set	1

4,000	5%	200	0	0	0	30	230
2,000	5%	100	0	0	0	15	115
2,000	5%	100	0	0	0	15	115
2,000	5%	100	0	0	0	15	115
800	5%	40	21	21	110	6	198
4,000	5%	200	105	105	551	30	991
6,000	5%	300	158	158	827	45	1,487
33,600	5%	1680	882	882	4631	252	8,327
200	5%	10	5	5	28	2	50
7,000	5%	350	184	184	965	53	1,735
2,400	5%	120	0	0	0	18	138
9,000	10%	900	248	248	1299	68	2,762
9,000	10%	900	248	248	1299	68	2,762
9,000	10%	900	248	248	1299	68	2,762
4,600	10%	460	127	127	664	35	1,412
2,000	5%	100	0	0	0	15	115
20,270	5%	1014	532	532	2793	152	5,023
570	20%	114	17	17	90	4	242
4,420	10%	442	122	122	638	33	1,356
440	20%	88	13	13	69	3	187
330	5%	17	9	9	45	2	82
150	20%	30	5	5	24	1	64
600	20%	120	18	18	95	5	255
7,200	20%	1440	216	216	1134	54	3,060
81,400	20%	16280	2442	2442	12821	611	34,595
20	20%	4	1	1	3	0	9
1,000	20%	200	30	30	158	8	425

38	flue ash removal hole	set	1	
39	Rectangular insulation manhole door	set	1	
40	Pipe Expansion Joint	set	12	
41	Pipe support	set	24	
42	Explosion-proof maintenance power box	piece	1	
43	Explosion-proof operation column	piece	15	
44	Cable tray	meter	15	
45	Power cable	meter	14100	
46	electric wire	meter	0.1	
47	Explosion-proof lighting distribution box	piece	1	
48	Energy-saving explosion-proof lamp	set	60	
49	Galvanized steel	meter	629	
50	Galvanized angle steel	meter	546	
51	Industrial TV Surveillance System	set	1	
52	Automatic fire alarm system	set	1	
53	Bimetal Thermometer	piece	5	
54	Armored Temperature Elements	piece	28	
55	Electromagnetic Flowmeter	piece	1	
56	pressure gauge	piece	10	
57	Smart Pressure Transmitters	piece	8	
58	Smart Differential Pressure Transmitter	piece	27	
59	Differential pressure level transmitter	piece	1	
60	Throttling device	piece	12	
61	Mass Flow Meter	piece	2	
62	Glass plate (tube) level gauge	piece	1	
63	Combustible gas detectors	piece	1	
64	Zirconia Oxygen Analyzer	piece	2	
65	Regulating valve	piece	3	

1,000	5%	50	26	26	138	8	248
1,000	20%	200	30	30	158	8	425
3,000	20%	600	90	90	473	23	1,275
1,000	20%	200	30	30	158	8	425
5,600	20%	1120	168	168	882	42	2,380
4,600	5%	230	121	121	634	35	1,140
420	20%	84	13	13	66	3	179
393,000	20%	78600	11790	11790	61898	2948	167,025
5,600	20%	1120	168	168	882	42	2,380
9,400	20%	1880	282	282	1481	71	3,995
3,400	5%	170	89	89	469	26	843
2,200	20%	440	66	66	347	17	935
10,000	5%	500	263	263	1378	75	2,478
10,000	5%	500	263	263	1378	75	2,478
200	5%	10	5	5	28	2	50
8,400	5%	420	221	221	1158	63	2,082
2,000	5%	100	53	53	276	15	496
5,000	5%	250	131	131	689	38	1,239
16,000	5%	800	420	420	2205	120	3,965
54,000	5%	2700	1418	1418	7442	405	13,382
2,000	5%	100	53	53	276	15	496
24,000	5%	1200	630	630	3308	180	5,948
20,000	5%	1000	525	525	2756	150	4,956
700	5%	35	18	18	96	5	173
3,000	5%	150	79	79	413	23	743
60,000	5%	3000	1575	1575	8269	450	14,869
37,400	10%	3740	1029	1029	5400	281	11,477

66	On-off valve	piece	1	
67	Electric valve	piece	3	
68	Water supply and drainage valve	piece	4	
69	Water supply and drainage pipeline	meter	334	
70	Flange	piece	18	
71	Basket	piece	18	
72	Bolt	set	112	
73	fire extinguisher	piece	24	
74	fire extinguisher Box	piece	12	
<b>消防設施</b>				
1	Fire protection water pump	piece	3	
2	Fire protection booster pump	piece	2	
3	Fire protection valve	piece	41	
4	Swirl preventer	set	1	
5	safety valve	piece	2	
6	Power cable	meter	555	
7	Galvanized steel	meter	168	
8	Galvanized angle steel	meter	298	
9	lightings	set	9	
10	pressure gauge	piece	2	
11	Pressure Transmitter	piece	2	
12	Differential pressure level transmitter	piece	1	
13	Electromagnetic Flowmeter	piece	1	
14	Multifunctional water pump control valve	piece	2	
15	Instrumentation line	meter	63	
16	Instrumentation valve	piece	10	
17	Instrument Fittings	piece	22	
18	Instrumentation cable	meter	2300	
19	fire extinguisher	piece	2	
20	fire extinguisher Box	piece	1	
<b>Foam Station</b>				

10,000	10%	1000	275	275	1444	75	3,069
24,000	10%	2400	660	660	3465	180	7,365
400	10%	40	11	11	58	3	123
25,200	20%	5040	756	756	3969	189	10,710
340	20%	68	10	10	54	3	145
340	5%	17	9	9	47	3	84
1,760	20%	352	53	53	277	13	748
19,200	5%	960	504	504	2646	144	4,758
1,200	5%	60	32	32	165	9	297
24,000	5%	1200	630	630	3308	180	5,948
800	5%	40	21	21	110	6	198
19,200	10%	1920	528	528	2772	144	5,892
4,000	5%	200	105	105	551	30	991
7,600	10%	760	209	209	1097	57	2,332
15,400	20%	3080	462	462	2426	116	6,545
12,200	5%	610	320	320	1681	92	3,023
1,000	5%	50	26	26	138	8	248
400	20%	80	12	12	63	3	170
100	5%	5	3	3	14	1	25
4,000	5%	200	105	105	551	30	991
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
10,000	10%	1000	275	275	1444	75	3,069
6,800	5%	340	179	179	937	51	1,685
400	10%	40	11	11	58	3	123
100	20%	20	3	3	16	1	43
9,200	20%	1840	276	276	1449	69	3,910
400	5%	20	11	11	55	3	99
100	5%	5	3	3	14	1	25

1	Pressure Foam Proportioning Mixer	piece	2
2	Valve	piece	5
3	Power cable	meter	2340
4	lightings	set	8
5	Galvanized steel	meter	170
6	Galvanized angle steel	meter	131
7	pressure gauge	piece	2
8	Smart Pressure Transmitter	piece	2
9	Electric valve	piece	4
10	fire extinguisher	piece	2
11	fire extinguisher Box	piece	1
<b>Fire Protection water pipe network</b>			
1	water supply and drainage pipeline	meter	7145
2	valves	piece	111
3	Water supply and drainage pipeline anti-corrosion glass-fibre fabric	m	30463
4	Equipment primer	ton	2
5	Equipment topcoat	ton	10
6	fire hydrant	piece	53
7	fire water cannon	piece	43
8	fire foam hydrant	piece	29
9	pipe fittings	piece	1137
10	Flange	piece	526
11	Gasket	piece	247
12	Bolt	set	2640
13	Steel Materials	ton	7.4
<b>Circulating water field</b>			
1	Circulating pump	piece	6
2	Wastewater Sewage Pump	piece	2
3	Electric hoist	piece	2
4	Electrical control cabinet	piece	2
5	Low voltage distribution cabinet	piece	5

64,000	5%	3200	1680	1680	8820	480	15,860
2,400	10%	240	66	66	347	18	737
65,000	20%	13000	1950	1950	10238	488	27,625
400	20%	80	12	12	63	3	170
12,000	5%	600	315	315	1654	90	2,974
400	20%	80	12	12	63	3	170
100	5%	5	3	3	14	1	25
4,000	5%	200	105	105	551	30	991
32,000	10%	3200	880	880	4620	240	9,820
400	5%	20	11	11	55	3	99
100	5%	5	3	3	14	1	25
518,600	10%	51860	14262	14262	74873	3890	159,145
70,000	20%	14000	2100	2100	11025	525	29,750
2,400	20%	480	72	72	378	18	1,020
15,600	20%	3120	468	468	2457	117	6,630
16,000	5%	800	420	420	2205	120	3,965
24,000	5%	1200	630	630	3308	180	5,948
13,400	5%	670	352	352	1847	101	3,321
8,800	20%	1760	264	264	1386	66	3,740
13,200	20%	2640	396	396	2079	99	5,610
4,600	5%	230	121	121	634	35	1,140
20,600	20%	4120	618	618	3245	155	8,755
15,000	5%	750	394	394	2067	113	3,717
545,200	5%	27260	14312	14312	75135	4089	135,107
13,200	5%	660	347	347	1819	99	3,271
4,600	5%	230	121	121	634	35	1,140
517,400	20%	103480	15522	15522	81491	3881	219,895
187,200	20%	37440	5616	5616	29484	1404	79,560

6	PLC control cabinet	piece	1	
7	Electrical control equipment supporting facilities	piece	1	
8	Conductivity online detector	piece	1	
9	PH online detector	piece	1	
10	ORP online detector	piece	1	
11	Online instrument cabinet	piece	1	
12	pressure gauge	set	1	
13	Shock Resistant Pressure Gauge	piece	8	
14	Pressure Transmitter	piece	3	
15	Hydrostatic Level Transmitter	piece	1	
16	Thermal resistance	piece	3	
17	Electromagnetic Flowmeter	piece	3	
18	Eight-circuit flashing signal alarm	piece	1	
19	Single-loop light column digital display transmission alarm device	piece	2	
20	Three-loop digital display transmission alarm device	piece	1	
21	Single-loop light column digital display proportional totalizer controller	piece	1	
22	Instrument box	piece	1	
23	Cooling fan	piece	3	
24	Gravity Valveless Filter	piece	3	
25	Fiber bundle filter	piece	2	
26	Corrosion and scale inhibitor dosing device	set	1	
27	Chlorine dioxide dosing device	set	1	
28	Gravity Valveless Filter	piece	3	
29	Fiber bundle filter	piece	2	
30	Corrosion and scale inhibitor dosing device	set	1	
31	Chlorine dioxide dosing device	set	1	
32	water supply and drainage pipeline	meter	3381	

41,400	20%	8280	1242	1242	1242	6521	311	17,595
62,000	20%	12400	1860	1860	1860	9765	465	26,350
76,207	5%	3810	2000	2000	10502	572	18,885	
5,174	5%	259	136	136	713	39	1,282	
5,174	5%	259	136	136	713	39	1,282	
5,174	5%	259	136	136	713	39	1,282	
5,174	5%	259	136	136	713	39	1,282	
200	5%	10	5	5	28	2	50	
1,104	5%	55	29	29	152	8	274	
8,205	5%	410	215	215	1131	62	2,033	
2,760	5%	138	72	72	380	21	684	
345	5%	17	9	9	48	3	85	
1,109	5%	55	29	29	153	8	275	
36,221	5%	1811	951	951	4992	272	8,976	
207	5%	10	5	5	29	2	51	
2,255	5%	113	59	59	311	17	559	
1,035	5%	52	27	27	143	8	256	
1,389,000	5%	69450	36461	36461	191422	10418	344,212	
369,600	5%	18480	9702	9702	50936	2772	91,592	
258,720	5%	12936	6791	6791	35655	1940	64,114	
25,194	5%	1260	661	661	3472	189	6,243	
27,597	5%	1380	724	724	3803	207	6,839	
369,600	5%	18480	9702	9702	50936	2772	91,592	
258,720	5%	12936	6791	6791	35655	1940	64,114	
25,194	5%	1260	661	661	3472	189	6,243	
27,597	5%	1380	724	724	3803	207	6,839	
255,000	20%	51000	7650	7650	40163	1913	108,375	

33	pipe fittings and valves	piece	24
<b>Demineralized water station</b>			
1	compressed air tank	piece	1
2	carbon remover	piece	1
3	mixed bed	piece	2
4	Alkali metering box	piece	1
5	Acid metering tank	piece	1
6	Resin trap	piece	2
7	Concentrated water tank	piece	1
8	RO production tank	piece	1
9	Demineralized water tank	piece	1
10	Demineralized water raw pool	piece	1
11	RO high pressure pump	piece	2
12	booster pump	piece	2
13	Intermediate water pump	piece	2
14	Demineralized Water Pump	piece	2
15	regeneration pump	piece	2
16	cleaning water pump	piece	2
17	Alkali discharge pump	piece	2
18	Acid discharge pump	piece	2
19	Neutralizing water pump	piece	2
20	Multimedia filter	piece	4
21	Activated carbon filter	piece	4
22	ultrafilter	piece	2
23	resin trap	piece	3
24	Cleaning Filter	piece	1
25	tubular exchanger	piece	1
26	Flocculant dosing device	set	1
27	Scale inhibitor dosing device	set	1
28	Reductant dosing device	set	1
29	Ammonia dosing device	set	1
30	Reverse osmosis device	set	1
31	Carbon Steel Pipe	meter	3020
32	Valve	piece	265
33	pipe fittings	piece	542

27,600	20%	5520	828	4347	207	11,730
2,000	20%	400	60	315	15	850
50,200	5%	2510	1318	6918	377	12,440
193,400	5%	9670	5077	26653	1451	47,927
5,200	10%	520	143	751	39	1,596
5,200	20%	1040	156	819	39	2,210
50,200	5%	2510	1318	6918	377	12,440
70,400	20%	14080	2112	11088	528	29,920
70,400	20%	14080	2112	11088	528	29,920
131,800	20%	26360	3954	20759	989	56,015
123,400	5%	6170	3239	17006	926	30,580
64,600	5%	3230	1696	8903	485	16,009
8,400	5%	420	221	1158	63	2,082
5,800	5%	290	152	799	44	1,437
13,200	5%	660	347	1819	99	3,271
5,200	5%	260	137	717	39	1,289
1,000	5%	50	26	138	8	248
1,000	5%	50	26	138	8	248
1,000	5%	50	26	138	8	248
15,600	5%	780	410	2150	117	3,866
4,000	5%	200	105	551	30	991
4,000	5%	200	105	551	30	991
2,000	5%	100	53	276	15	496
6,000	5%	300	158	827	45	1,487
2,000	5%	100	53	276	15	496
3,400	5%	170	89	469	26	843
6,200	5%	310	163	854	47	1,536
200	5%	10	5	28	2	50
200	5%	10	5	28	2	50
8,600	5%	430	226	1185	65	2,131
371,400	5%	18570	9749	51184	2786	92,038
93,400	5%	4670	2452	12872	701	23,146
114,800	10%	11480	3157	16574	861	35,229
8,400	20%	1680	252	1323	63	3,570



34	Pipe flange	piece	552
35	Gasket	piece	552
36	Bolt	piece	2208
37	Power distribution box	piece	1
38	Power cable	meter	11333
39	Galvanized steel	meter	516
40	Galvanized flat steel	piece	1140
41	Differential pressure transmitter	piece	1
42	Throttling device	piece	1
43	Vortex flowmeter	piece	2
44	Smart Pressure Transmitter	piece	3
45	Instrument power cabinet	piece	1
46	PLC cabinet	piece	1
47	High pressure pump frequency conversion cabinet	piece	1
48	GGD control cabinet	piece	1
49	Field control box	piece	10
50	Online Instrumentation System	set	1
51	pressure gauge	piece	3
52	Instrumentation line	meter	560
53	Instrumentation valves	piece	11
54	pipe fittings	piece	34
55	Bolt	set	16
56	Gasket	piece	3
57	Instrumentation cables	meter	39260
58	water supply and drainage pipeline	piece	197
59	valves	piece	6
60	Pipe flange	piece	16
61	Gasket	piece	10
62	Bolt	set	112
63	Cable tray	meter	496
<b>condensate water station</b>			
1	gas storage tank	piece	1
2	Condensate buffer tank	piece	2

13,800	20%	2760	414	414	2174	104	5,865
10,400	5%	520	273	273	1433	78	2,577
34,600	20%	6920	1038	1038	5450	260	14,705
3,800	20%	760	114	114	599	29	1,615
64,600	20%	12920	1938	1938	10175	485	27,455
3,200	5%	160	84	84	441	24	793
4,200	5%	210	110	110	579	32	1,041
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
4,000	5%	200	105	105	551	30	991
6,000	5%	300	158	158	827	45	1,487
20,600	20%	4120	618	618	3245	155	8,755
31,000	5%	1550	814	814	4272	233	7,682
41,400	5%	2070	1087	1087	5705	311	10,259
62,000	5%	3100	1628	1628	8544	465	15,364
27,600	5%	1380	725	725	3804	207	6,840
155,200	5%	7760	4074	4074	21389	1164	38,461
200	5%	10	5	5	28	2	50
61,200	5%	3060	1607	1607	8434	459	15,166
10,000	10%	1000	275	275	1444	75	3,069
400	20%	80	12	12	63	3	170
200	20%	40	6	6	32	2	85
200	5%	10	5	5	28	2	50
42,800	20%	8560	1284	1284	6741	321	18,190
14,800	20%	2960	444	444	2331	111	6,290
4,000	10%	400	110	110	578	30	1,228
400	20%	80	12	12	63	3	170
200	5%	10	5	5	28	2	50
600	20%	120	18	18	95	5	255
13,800	20%	2760	414	414	2174	104	5,865
5,200	20%	1040	156	156	819	39	2,210
65,000	20%	13000	1950	1950	10238	488	27,625

3	Plate Heat Exchanger	piece	2
4	filter element	piece	40
5	Bypass system	set	1
6	Condensate Pump	piece	2
7	Backwash water pump	piece	2
8	Carbon Steel Pipe	meter	1269
9	Valves	piece	13
10	pipe fittings	piece	56
11	Pipe flange	piece	26
12	Bolt	set	52
13	Gasket	piece	26
14	Temperature Transmitter	piece	3
15	Oil Content Analyzer	piece	2
16	pressure gauge	piece	1
17	PLC controller	set	1
18	Touch screen	piece	1
19	Low voltage electrical components	piece	1
20	cabinet	piece	1
21	Motor local control cabinet	piece	1
22	Boxes	piece	2
23	F.R.L	set	2
24	local pressure gauge	piece	4
25	Differential pressure transmitter	piece	2
26	The electromagnetic valve	piece	3
27	Electrical cable	meter	500
28	Lightings	set	19
29	Galvanized steel	meter	140
30	Galvanized flat steel	meter	460
31	Instrument cable	meter	14318
32	Instrument cable tray	meter	156
33	water supply and drainage valve	piece	7
34	fire hydrant Box	set	2
35	fire extinguisher and box	set	3
<b>Compressed air station</b>			

63,600	5%	3180	1670	1670	8765	477	15,761
44,000	5%	2200	1155	1155	6064	330	10,904
13,800	5%	690	362	362	1902	104	3,420
7,800	5%	390	205	205	1075	59	1,933
7,800	5%	390	205	205	1075	59	1,933
39,200	5%	1960	1029	1029	5402	294	9,714
17,200	10%	1720	473	473	2483	129	5,278
400	20%	80	12	12	63	3	170
600	20%	120	18	18	95	5	255
400	20%	80	12	12	63	3	170
600	5%	30	16	16	83	5	149
6,160	5%	308	162	162	849	46	1,527
38,315	5%	1916	1006	1006	5280	287	9,495
6,899	5%	345	181	181	951	52	1,710
6,222	5%	311	163	163	857	47	1,542
6,899	5%	345	181	181	951	52	1,710
10,349	20%	2070	310	310	1630	78	4,398
6,899	20%	1380	207	207	1087	52	2,932
5,174	5%	259	136	136	713	39	1,282
2,070	5%	104	54	54	285	16	513
2,070	5%	104	54	54	285	16	513
800	5%	40	21	21	110	6	198
40,000	5%	2000	1050	1050	5513	300	9,913
1,035	0%	0	26	26	136	8	195
2,800	20%	560	84	84	441	21	1,190
800	20%	160	24	24	126	6	340
10,200	5%	510	268	268	1406	77	2,528
16,200	5%	810	425	425	2233	122	4,015
15,600	20%	3120	468	468	2457	117	6,630
4,400	20%	880	132	132	693	33	1,870
6,000	20%	1200	180	180	945	45	2,550
4,000	5%	200	105	105	551	30	991
12,000	5%	600	315	315	1654	90	2,974

1	Steel Structure	ton	13.5
2	Nitrogen storage tank	piece	1
3	Nitrogen buffer tank	piece	1
4	Purifying air tank	piece	2
5	Non-purified air tank	piece	1
6	Liquid nitrogen storage tank	piece	2
7	Liquid nitrogen system nitrogen buffer tank	piece	1
8	Screw Air Compressor	piece	5
9	Combined dryer	piece	2
10	Nitrogen Adsorption Machine	piece	2
11	Oil-free regeneration dryer	piece	2
12	Nitrogen generator (including air compressor)	set	1
13	ultrafilter	piece	2
14	Cold dryer	piece	1
15	Liquid nitrogen pump	piece	2
16	Air temperature tank booster	piece	1
17	Air Temperature Vaporizer	piece	2
18	Non-purified compressed air tank overhead safety valve	piece	1
19	Purge compressed air tank overhead safety valve	piece	2
20	Valve	piece	149
21	Carbon Steel Pipe	meter	11044
22	pipe fittings	piece	435
23	Pipe flange	piece	333
24	Gasket	piece	346
25	Bolt	set	2340
26	Pipe Anti-corrosion Materials	ton	0.17
27	Pipe support hanger	ton	1.5
28	electrical cable	meter	7950
29	Galvanized steel	meter	455
30	Galvanized angle steel	meter	655
31	Differential pressure transmitter	piece	4

320,000	20%	64000	9600	9600	50400	2400	136,000
62,600	20%	12520	1878	1878	9860	470	26,605
62,600	20%	12520	1878	1878	9860	470	26,605
125,200	20%	25040	3756	3756	19719	939	53,210
62,600	20%	12520	1878	1878	9860	470	26,605
487,600	20%	97520	14628	14628	76797	3657	207,230
156,200	20%	31240	4686	4686	24602	1172	66,385
234,400	20%	46880	7032	7032	36918	1758	99,620
20,000	5%	1000	525	525	2756	150	4,956
93,800	5%	4690	2462	2462	12927	704	23,245
48,000	5%	2400	1260	1260	6615	360	11,895
48,800	20%	9760	1464	1464	7686	366	20,740
12,000	5%	600	315	315	1654	90	2,974
16,000	5%	800	420	420	2205	120	3,965
21,800	5%	1090	572	572	3004	164	5,402
12,000	5%	600	315	315	1654	90	2,974
281,200	5%	14060	7382	7382	38753	2109	69,685
7,600	10%	760	209	209	1097	57	2,332
15,200	10%	1520	418	418	2195	114	4,665
76,200	10%	7620	2096	2096	11001	572	23,384
341,600	5%	17080	8967	8967	47077	2562	84,653
6,800	20%	1360	204	204	1071	51	2,890
8,400	20%	1680	252	252	1323	63	3,570
6,600	5%	330	173	173	910	50	1,636
36,600	20%	7320	1098	1098	5765	275	15,555
140	20%	28	4	4	22	1	60
3,400	20%	680	102	102	536	26	1,445
45,400	20%	9080	1362	1362	7151	341	19,295
2,800	5%	140	74	74	386	21	694
2,400	20%	480	72	72	378	18	1,020
8,000	5%	400	210	210	1103	60	1,983

32	Electromagnetic Flowmeter	piece	1	
33	Regulating valve	piece	3	
34	Throttling device	piece	4	
35	Armored Temperature Elements	piece	2	
36	Bimetal Thermometer	piece	2	
37	Pressure Transmitter	piece	7	
38	pressure gauge	piece	5	
39	water supply and drainage pipeline	meter	419	
40	pipe fittings	piece	24	
41	Pipe flange	piece	22	
42	Gasket	piece	22	
43	Bolt	set	120	
1	Domestic sewage self-priming lift pump	piece	2	
2	1# artificial grill	piece	1	
3	2# artificial grill	piece	1	
4	water supply and drainage pipeline	meter	210	
5	valve	piece	2	
6	pressure gauge	piece	5	
7	Pressure Transmitter	piece	1	
8	Electromagnetic Flowmeter	piece	1	
9	Radar Level Gauge	piece	2	
10	Instrumentation pipeline	meter	97	
11	Instrumentation cables	meter	430	
<b>Sewage treatment plant</b>				
1	Separation tank	piece	2	
2	Slurry oil tank	piece	1	
3	Accident mediation tank	piece	1	
4	Circulating water tank	piece	3	
5	Multimedia filter	piece	2	
6	Activated carbon filter	piece	2	
7	deep bed filter	piece	4	
8	reverse osmosis ultrafilter	piece	1	

3,000	10%	300	83	83	433	23	921
37,400	10%	3740	1029	1029	5400	281	11,477
8,000	5%	400	210	210	1103	60	1,983
600	5%	30	16	16	83	5	149
1,000	5%	50	26	26	138	8	248
14,000	5%	700	368	368	1929	105	3,469
200	5%	10	5	5	28	2	50
31,600	5%	1580	830	830	4355	237	7,831
40	20%	8	1	1	6	0	17
600	20%	120	18	18	95	5	255
400	5%	20	11	11	55	3	99
1,800	20%	360	54	54	284	14	765
200	5%	10	5	5	28	2	50
2	20%	0	0	0	0	0	1
2	20%	0	0	0	0	0	1
15,800	20%	3160	474	474	2489	119	6,715
2,000	10%	200	55	55	289	15	614
200	5%	10	5	5	28	2	50
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
2,000	5%	100	53	53	276	15	496
10,600	5%	530	278	278	1461	80	2,627
1,800	20%	360	54	54	284	14	765
-							
154,616	20%	30923	4638	4638	24352	1160	65,712
35,420	20%	7084	1063	1063	5579	266	15,054
462,000	20%	92400	13860	13860	72765	3465	196,350
154,616	20%	30923	4638	4638	24352	1160	65,712
35,420	5%	1771	930	930	4881	266	8,778
462,000	5%	23100	12128	12128	63669	3465	114,489
13,552	5%	678	356	356	1868	102	3,358
6,801	5%	340	179	179	937	51	1,685

9	Reclaimed water reuse tank, 200m3, carbon steel anti-corrosion	piece	1	
10	Hydrolysis acidification pool	piece	1	
11	Sewage treatment electrical control system	set	1	
12	Deodorization system electrical control system	set	1	
13	Electrical control system for reclaimed water reuse	set	1	
14	Sewage treatment cable wire and bridge	set	1	
15	Deodorization system cable wire and bridge	set	1	
16	Reclaimed water reuse cable, wire and bridge	set	1	
17	Grille slag remover	set	1	
18	Truss Type Oil Skimmer	set	2	
19	Vortex air flotation	set	1	
20	Pressurized flotation device	set	1	
21	Pulse water distributor	set	4	
22	Microporous aerator	set	500	
23	Center drive mud scraper	set	2	
24	Centrifugal fan	set	2	
25	Snail Sludge Dewatering Machine	set	2	
26	Dosing device for stacked snail sludge dewatering machine	set	1	
27	Screw conveyor	set	1	
28	sludge hopper	set	1	
29	Sewage treatment dosing device	set	4	
30	Pre-wash spray device	set	1	
31	Biological deodorization device	set	1	
32	exhaust pipe	set	1	
33	Flocculant dosing device	set	1	
34	Biocide dosing device	set	1	

125,541	20%	25108	3766	3766	19773	942	53,355
231,356	5%	11568	6073	6073	31884	1735	57,333
62,093	5%	3105	1630	1630	8557	466	15,387
27,597	5%	1380	724	724	3803	207	6,839
27,597	5%	1380	724	724	3803	207	6,839
48,294	5%	2415	1268	1268	6656	362	11,968
6,838	5%	342	179	179	942	51	1,695
20,698	5%	1035	543	543	2852	155	5,129
9,548	5%	477	251	251	1316	72	2,366
54,578	5%	2729	1433	1433	7522	409	13,525
141,064	5%	7053	3703	3703	19440	1058	34,957
134,288	5%	6714	3525	3525	18507	1007	33,278
64,310	5%	3216	1688	1688	8863	482	15,937
17,248	5%	862	453	453	2377	129	4,274
159,175	5%	7959	4178	4178	21936	1194	39,446
78,109	5%	3905	2050	2050	10764	586	19,356
108,786	5%	5439	2856	2856	14992	816	26,959
10,349	5%	517	272	272	1426	78	2,565
13,798	5%	690	362	362	1902	103	3,419
27,597	5%	1380	724	724	3803	207	6,839
41,395	5%	2070	1087	1087	5705	310	10,258
63,078	5%	3154	1656	1656	8693	473	15,632
62,216	5%	3111	1633	1633	8574	467	15,418
17,248	5%	862	453	453	2377	129	4,274
5,174	5%	259	136	136	713	39	1,282
5,174	5%	259	136	136	713	39	1,282

35	Ultrafiltration device	set	1	
36	Ultrafiltration backwash sterilization dosing device	set	1	
37	Ultrafiltration backwash acid dosing device	set	1	
38	Ultrafiltration backwash alkali dosing device	set	1	
39	Reductant dosing device	set	1	
40	Scale inhibitor dosing device	set	1	
41	Reverse osmosis device	set	1	
42	Chemical cleaning device	set	1	
43	FRP induced draft fan	piece	2	
44	Sewage lift pump	piece	2	
45	Sump pump	piece	2	
46	Hydrolysis and acidification tank lift pump	piece	2	
47	Sludge return pump	piece	6	
48	sludge pump	piece	2	
49	Pre-wash spray ring pump	piece	2	
50	circulating pump	piece	2	
51	Raw water pump	piece	2	
52	Filter backwash pump	piece	1	
53	Ultrafiltration backwash pump	piece	2	
54	reverse osmosis booster pump	piece	2	
55	reverse osmosis high pressure pump	piece	1	
56	reclaimed Water reuse pump	piece	2	
57	Cleaning the water pump	piece	1	
58	biological contact filler	m <sup>3</sup>	1100	
59	exhaust gas collection cover	set	1	
60	valve	piece	269	
61	pipe fittings	piece	1321	
62	pipelines	meter	3250	
63	level gauge	piece	2	
64	Electromagnetic Flowmeter	piece	2	

91,045	5%	4552	2390	2390	12547	683	22,562
5,174	5%	259	136	136	713	39	1,282
5,174	5%	259	136	136	713	39	1,282
5,174	5%	259	136	136	713	39	1,282
2,760	5%	138	72	72	380	21	684
2,760	5%	138	72	72	380	21	684
153,261	5%	7663	4023	4023	21121	1149	37,980
13,798	5%	690	362	362	1902	103	3,419
27,597	5%	1380	724	724	3803	207	6,839
9,548	5%	477	251	251	1316	72	2,366
6,209	5%	310	163	163	856	47	1,539
9,548	5%	477	251	251	1316	72	2,366
21,252	5%	1063	558	558	2929	159	5,267
5,544	5%	277	146	146	764	42	1,374
4,066	5%	203	107	107	560	30	1,008
4,066	5%	203	107	107	560	30	1,008
8,008	5%	400	210	210	1104	60	1,984
6,160	5%	308	162	162	849	46	1,527
8,008	5%	400	210	210	1104	60	1,984
6,160	5%	308	162	162	849	46	1,527
60,200	5%	3010	1580	1580	8296	452	14,918
6,160	5%	308	162	162	849	46	1,527
2,926	5%	146	77	77	403	22	725
37,800	5%	1890	992	992	5209	284	9,367
125,600	5%	6280	3297	3297	17309	942	31,125
170,400	10%	17040	4686	4686	24602	1278	52,292
52,000	20%	10400	1560	1560	8190	390	22,100
60,000	20%	12000	1800	1800	9450	450	25,500
1,241	5%	62	33	33	171	9	308
5,628	5%	281	148	148	776	42	1,395

65	Sewage treatment PH meter	piece	1	
66	Dissolved Oxygen Monitor	piece	2	
67	Deodorization system PH, hydrogen sulfide detection instrument	piece	1	
68	COD monitor	piece	1	
69	Ammonia nitrogen monitor	piece	1	
70	pH monitor	piece	1	
71	Online monitoring of oil quality	piece	1	
72	Reclaimed water, treatment instrument PH, ORP, conductance, flow, temperature, etc.	set	1	
73	Instrumentation pipeline	meter	427	
74	Instrumentation cable tray	meter	680	
75	Instrumentation cable	meter	1200	
<b>Main substation</b>				
1	Oil immersed transformer	piece	2	
2	Switchgear	piece	30	
3	UPS power unit	set	1	
4	Bus bridge	set	4	
5	Electrical bridge	meter	2420	
6	Electrical cable	meter	12600	
7	Lighting fixtures	set	36	
8	Lightning protection grounding system	set	1	
9	Fire alarm system	set	1	
10	camera	piece	10	
11	Telephone station / walkie-talkie system	set	1	
12	Integrated wiring system	set	1	
13	water supply and drainage system	set	1	
14	valves	piece	36	
15	AC	piece	20	
16	fan	piece	18	
17	fire extinguisher	piece	20	

1,725	5%	86	45	45	238	13	427
11,039	5%	552	290	290	1521	83	2,736
20,698	5%	1035	543	543	2852	155	5,129
16,558	5%	828	435	435	2282	124	4,103
16,558	5%	828	435	435	2282	124	4,103
6,899	5%	345	181	181	951	52	1,710
13,798	5%	690	362	362	1902	103	3,419
51,800	5%	2590	1360	1360	7139	389	12,837
46,600	5%	2330	1223	1223	6422	350	11,548
19,000	20%	3800	570	570	2993	143	8,075
48,000	20%	9600	1440	1440	7560	360	20,400
-							
2,400,000	5%	120000	63000	63000	330750	18000	594,750
1,500,000	5%	75000	39375	39375	206719	11250	371,719
300,000	5%	15000	7875	7875	41344	2250	74,344
800,000	5%	40000	21000	21000	110250	6000	198,250
67,200	20%	13440	2016	2016	10584	504	28,560
1,788,000	20%	357600	53640	53640	281610	13410	759,900
1,200	20%	240	36	36	189	9	510
24,000	20%	4800	720	720	3780	180	10,200
10,000	5%	500	263	263	1378	75	2,478
12,000	20%	2400	360	360	1890	90	5,100
20,000	10%	2000	550	550	2888	150	6,138
480,000	20%	96000	14400	14400	75600	3600	204,000
46,600	20%	9320	1398	1398	7340	350	19,805
12,000	10%	1200	330	330	1733	90	3,683
20,000	20%	4000	600	600	3150	150	8,500
36,000	20%	7200	1080	1080	5670	270	15,300
400	5%	20	11	11	55	3	99

1# Regional Substation			
1	Oil immersed transformer	piece	4
2	10KV Switchgear	piece	36
3	Switchgear bus bridge	set	4
4	Inverter cabinet	piece	5
5	Communication server cabinet	piece	1
6	Communication management cabinet	piece	1
7	Intelligent DC Power Supply	set	1
8	lighting cabinet	piece	1
9	UPS power unit	set	1
10	Cable tray	meter	480
11	electrical cable	meter	11975
12	lighting fixtures	set	60
13	Lightning protection grounding system	set	1
14	fire alarm system	set	1
15	camera	piece	10
16	Telephone station / walkie-talkie system	set	1
17	Integrated wiring system	set	1
18	water supply and drainage system	set	1
19	AC	piece	20
20	Fan	piece	20
21	fire extinguisher	piece	20
<b>Factory power supply and lighting</b>			
1	Electrical bridge	meter	5200
2	electrical cable	meter	12500
3	lightings	set	180
4	Lightning protection grounding	set	1
<b>Factory Telecom</b>			
1	Fire Alarm Control Cabinet	piece	20
2	electrical cable	meter	56400
3	TV surveillance cabinet	piece	20
4	Server	piece	20

2,400,000	5%	120000	63000	63000	330750	18000	594,750
2,160,000	5%	108000	56700	56700	297675	16200	535,275
400,000	5%	20000	10500	10500	55125	3000	99,125
100,000	5%	5000	2625	2625	13781	750	24,781
20,000	5%	1000	525	525	2756	150	4,956
20,000	5%	1000	525	525	2756	150	4,956
40,000	5%	2000	1050	1050	5513	300	9,913
20,000	5%	1000	525	525	2756	150	4,956
300,000	5%	15000	7875	7875	41344	2250	74,344
13,400	20%	2680	402	402	2111	101	5,695
1,699,400	20%	339880	50982	50982	267656	12746	722,245
2,000	20%	400	60	60	315	15	850
24,000	20%	4800	720	720	3780	180	10,200
10,000	5%	500	263	263	1378	75	2,478
12,000	20%	2400	360	360	1890	90	5,100
20,000	5%	1000	525	525	2756	150	4,956
40,000	20%	8000	1200	1200	6300	300	17,000
46,600	20%	9320	1398	1398	7340	350	19,805
40,000	20%	8000	1200	1200	6300	300	17,000
20,000	20%	4000	600	600	3150	150	8,500
400	5%	20	11	11	55	3	99
144,600	20%	28920	4338	4338	22775	1085	61,455
115,000	20%	23000	3450	3450	18113	863	48,875
36,000	20%	7200	1080	1080	5670	270	15,300
4,000	20%	800	120	120	630	30	1,700
400,000	5%	20000	10500	10500	55125	3000	99,125
518,800	20%	103760	15564	15564	81711	3891	220,490
200,000	20%	40000	6000	6000	31500	1500	85,000
100,000	5%	5000	2625	2625	13781	750	24,781



5	display	set	1
6	video workstation	set	1
7	IT cabinet	piece	5
<b>Central laboratory</b>			
1	Distillation tester	piece	4
2	Automatic closed flash point tester	piece	1
3	Petroleum product vacuum distillation tester	piece	1
4	Kinematic Viscosimeter for Petroleum Products	piece	2
5	Petroleum Products Copper Corrosion Tester	piece	2
6	Organic analyzer for industrial sulfur	piece	1
7	Petroleum product cold filter point tester	piece	1
8	Condensation point constant temperature water bath	piece	1
9	Distillate fuel oil oxidation stability tester	piece	1
10	Actual Glue Tester for Vehicle Gasoline and Aviation Fuel	piece	1
11	Gasoline saturated vapor pressure tester	piece	1
12	Low temperature constant temperature water bath	piece	1
13	LPG Vapor Pressure Tester	piece	1
14	LPG Density Tester	piece	1
15	LPG Copper Corrosion Tester	piece	1
16	Petroleum product colorimeter tester	piece	1
17	Electric furnace carbon residue tester	piece	1

600,000	5%	30000	15750	15750	82688	4500	148,688
100,000	5%	5000	2625	2625	13781	750	24,781
100,000	10%	10000	2750	2750	14438	750	30,688
48,000	10%	4800	1320	1320	6930	360	14,730
16,000	10%	1600	440	440	2310	120	4,910
8,000	10%	800	220	220	1155	60	2,455
13,200	10%	1320	363	363	1906	99	4,051
4,000	10%	400	110	110	578	30	1,228
8,000	10%	800	220	220	1155	60	2,455
4,600	10%	460	127	127	664	35	1,412
4,000	10%	400	110	110	578	30	1,228
6,400	10%	640	176	176	924	48	1,964
5,000	10%	500	138	138	722	38	1,534
6,400	10%	640	176	176	924	48	1,964
4,000	20%	800	120	120	630	30	1,700
6,000	10%	600	165	165	866	45	1,841
6,000	10%	600	165	165	866	45	1,841
6,000	10%	600	165	165	866	45	1,841
1,000	10%	100	28	28	144	8	307
2,000	10%	200	55	55	289	15	614

18	Carbon residue tester (Kang's method)	piece	1	
19	Density Tester for Crude Oil and Liquid Petroleum Products	piece	2	
20	Crude Oil Water Content Tester	piece	4	
21	Electric thermostatic drying oven	piece	4	
22	electronic balance	piece	4	
23	refrigerator	piece	1	
24	COD(Cr) tester	piece	1	
25	COD digestion device	piece	1	
26	Ammonia nitrogen tester	piece	1	
27	chamber electric furnace	piece	4	
28	Asphalt Penetration Tester	piece	2	
29	Asphalt softening point tester	piece	1	
30	Asphalt Sample Furnace	piece	1	
31	Asphalt thin-film oven	piece	1	
32	thermostat water bath	piece	2	
33	Cleveland flash point apparatus	piece	1	
34	Asphalt Brookfield Viscometer	piece	1	
35	Asphalt Kinematic Viscometer	piece	1	
36	Crude Oil Salt Content Tester	piece	1	
37	Electric furnace carbon residue tester	piece	1	
38	Bromine Index Tester	piece	1	
39	Alkaline Nitrogen Analyzer	piece	1	
40	BOD Tester	piece	1	
41	Ultraviolet Fluorescence Sulfur Meter	piece	1	
42	Gas Chromatograph	piece	4	
43	Saybolt Color Tester	piece	1	
44	feed Salt content meter	piece	1	
45	Temperature and Speed Asphalt Elongation Tester	piece	1	
46	Asphalt Wax Content Tester	piece	1	
47	Fluorescence sulfur meter	piece	2	

2,000	10%	200	55	55	289	15	614
2,400	10%	240	66	66	347	18	737
5,000	10%	500	138	138	722	38	1,534
4,000	10%	400	110	110	578	30	1,228
400	10%	40	11	11	58	3	123
2,000	20%	400	60	60	315	15	850
400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123
2,000	10%	200	55	55	289	15	614
4,000	10%	400	110	110	578	30	1,228
2,000	10%	200	55	55	289	15	614
1,000	10%	100	28	28	144	8	307
1,200	10%	120	33	33	173	9	368
400	20%	80	12	12	63	3	170
1,000	10%	100	28	28	144	8	307
3,000	10%	300	83	83	433	23	921
3,200	10%	320	88	88	462	24	982
3,000	10%	300	83	83	433	23	921
1,000	10%	100	28	28	144	8	307
3,000	10%	300	83	83	433	23	921
4,000	10%	400	110	110	578	30	1,228
4,000	10%	400	110	110	578	30	1,228
8,400	10%	840	231	231	1213	63	2,578
24,000	10%	2400	660	660	3465	180	7,365
6,000	10%	600	165	165	866	45	1,841
4,000	10%	400	110	110	578	30	1,228
10,000	10%	1000	275	275	1444	75	3,069
8,000	10%	800	220	220	1155	60	2,455
12,000	10%	1200	330	330	1733	90	3,683

48	Microcoulometric Sulfur Meter	piece	1	
49	Gas Chromatograph	piece	1	
50	Petroleum Asphalt Component Tester	piece	1	
51	Microcoulometer	piece	1	
52	Smart sulfur meter	piece	1	
53	Pour point and cloud point tester for petroleum products	piece	1	
54	Experimental side table (10 fume hoods + 21 medicine cabinets)	piece	1	
55	Portable Dissolved Oxygen Meter	piece	1	
56	Electronic balance	piece	1	
57	Multifunctional Crude Oil Water Content Automatic Rapid Tester	piece	1	
58	Explosion-proof fume hood	piece	3	
59	Condensing point tester	piece	2	
60	Asphalt operation test bench	set	1	
61	Coulomb sulfur electrolytic cell	piece	1	
62	Microcoulometric Chloride electrolytic cell	piece	1	
63	Hydrogen Alarm	piece	1	
64	Petroleum product vacuum distillation range tester	piece	1	
65	Petroleum product density tester	piece	2	
66	Petroleum product distillation tester	piece	4	
67	PH meter	piece	1	
68	Copper Corrosion Tester	piece	1	
69	Toledo electronic balance	piece	1	
70	Microcomputer multi-element high-speed analyzer	piece	1	
71	zinc lamp	piece	1	
72	LPG Hydrogen Sulfide Tester	piece	1	
73	Noise Analyzer	piece	1	
74	UV spectrometer	piece	1	

14,000	10%	1400	385	385	2021	105	4,296
11,000	10%	1100	303	303	1588	83	3,376
13,200	10%	1320	363	363	1906	99	4,051
10,400	10%	1040	286	286	1502	78	3,192
6,000	10%	600	165	165	866	45	1,841
6,000	10%	600	165	165	866	45	1,841
8,000	10%	800	220	220	1155	60	2,455
4,000	10%	400	110	110	578	30	1,228
200	10%	20	6	6	29	2	61
4,000	10%	400	110	110	578	30	1,228
2,000	10%	200	55	55	289	15	614
4,000	10%	400	110	110	578	30	1,228
6,000	10%	600	165	165	866	45	1,841
800	10%	80	22	22	116	6	246
800	10%	80	22	22	116	6	246
800	5%	40	21	21	110	6	198
800	10%	80	22	22	116	6	246
1,600	10%	160	44	44	231	12	491
4,000	10%	400	110	110	578	30	1,228
400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123
1,000	10%	100	28	28	144	8	307
400	10%	40	11	11	58	3	123
400	20%	80	12	12	63	3	170
400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123

75	UV-Vis Spectrophotometer	piece	1	
76	computer (including the host and monitor)	piece	1	
77	Zirconia Analyzer	piece	12	
78	AC		20	
79	Fan		10	
80	Bridge crane		1	
81	Lightning protection grounding system	set	1	
82	lighting fixtures	set	20	
<b>Factory complex building and duty room</b>				
1	Air conditioner indoor unit	piece	143	
2	Air conditioner outdoor unit	piece	8	
3	Variable refrigerant flow air conditioner outdoor unit	piece	5	
4	Air-cooled precision constant temperature and humidity vertical cabinet air conditioning Indoor and outdoor unit	set	1	
5	Split air conditioner	set	3	
6	Wall-mounted split air conditioner	set	163	
7	Energy saving and low noise cabinet centrifugal fan	piece	4	
8	Fresh air indoor unit	piece	1	
9	Low Noise Wall Exhaust Fan	piece	8	
10	Energy saving and low noise cabinet centrifugal fan	piece	15	
11	exhaust fan	piece	197	
12	muffler	piece	10	
13	fire damper	piece	167	
14	Plate type smoke outlet	piece	1	
15	Double-layer louver vent	piece	273	
16	Single layer louver vent	piece	123	
17	Rainproof louver vent	piece	10	

400	10%	40	11	11	58	3	123
400	10%	40	11	11	58	3	123
24,000	10%	2400	660	660	3465	180	7,365
40,000	20%	8000	1200	1200	6300	300	17,000
4,000	20%	800	120	120	630	30	1,700
130,000	5%	6500	3413	3413	17916	975	32,216
18,000	20%	3600	540	540	2835	135	7,650
600	20%	120	18	18	95	5	255
292,600	20%	58520	8778	8778	46085	2195	124,355
368,800	20%	73760	11064	11064	58086	2766	156,740
163,000	20%	32600	4890	4890	25673	1223	69,275
30,000	20%	6000	900	900	4725	225	12,750
8,600	20%	1720	258	258	1355	65	3,655
198,000	20%	39600	5940	5940	31185	1485	84,150
14,000	20%	2800	420	420	2205	105	5,950
9,600	20%	1920	288	288	1512	72	4,080
7,400	20%	1480	222	222	1166	56	3,145
17,200	20%	3440	516	516	2709	129	7,310
24,400	20%	4880	732	732	3843	183	10,370
8,600	20%	1720	258	258	1355	65	3,655
31,800	20%	6360	954	954	5009	239	13,515
400	20%	80	12	12	63	3	170
13,000	20%	2600	390	390	2048	98	5,525
9,600	20%	1920	288	288	1512	72	4,080
1,600	20%	320	48	48	252	12	680

18	Low Noise Wall Exhaust Fan	piece	8	
19	unpowered hood	piece	17	
20	Manual split multi-leaf control valve	piece	85	
21	Air Duct Check Valve	piece	24	
22	Galvanized sheet steel rectangular duct	m <sup>2</sup>	615	
23	Centrifugal glass wool	m <sup>3</sup>	22	
24	Direct expansion constant temperature and humidity air conditioning box	set	2	
25	Precision air conditioner for computer room indoor and outdoor units	set	2	
26	heat exchanger	piece	4	
27	Energy-saving and low-noise exhaust fan	piece	11	
28	Ceiling recessed split air conditioner	set	2	
29	New low noise wall type axial flow fan	piece	5	
30	Ducted Ventilating Fan for Ceiling	piece	4	
31	Axial flow fire exhaust fan	piece	4	
32	Plate type smoke outlet	piece	4	
33	280°C fire damper	piece	4	
34	70°C fire damper	piece	18	
35	Electric closed valve	piece	2	
36	Distribution Cabinet	piece	14	
37	Distribution box	piece	51	
38	Elevator power box dual power supply self-cutting	piece	1	
39	Monitoring cabinet power monitoring metering system	set	1	

7,400	20%	1480	222	222	1166	56	3,145
3,000	20%	600	90	90	473	23	1,275
5,800	20%	1160	174	174	914	44	2,465
3,200	10%	320	88	88	462	24	982
8,400	20%	1680	252	252	1323	63	3,570
4,000	20%	800	120	120	630	30	1,700
93,600	20%	18720	2808	2808	14742	702	39,780
71,200	20%	14240	2136	2136	11214	534	30,260
12,000	20%	2400	360	360	1890	90	5,100
3,200	20%	640	96	96	504	24	1,360
9,400	20%	1880	282	282	1481	71	3,995
2,400	20%	480	72	72	378	18	1,020
600	20%	120	18	18	95	5	255
20,000	20%	4000	600	600	3150	150	8,500
3,400	20%	680	102	102	536	26	1,445
3,400	20%	680	102	102	536	26	1,445
4,600	20%	920	138	138	725	35	1,955
600	10%	60	17	17	87	5	184
140,600	20%	28120	4218	4218	22145	1055	59,755
88,200	20%	17640	2646	2646	13892	662	37,485
3,200	20%	640	96	96	504	24	1,360
43,800	20%	8760	1314	1314	6899	329	18,615

40	Residual current type electrical fire monitoring system and background equipment	set	1	
41	Double tube grille fluorescent lamps	set	20	
42	Single tube grille fluorescent lamps	set	35	
43	Reflective LED Fluorescent Lamp	set	132	
44	ceiling lamp	set	45	
45	mirror headlights	set	18	
46	recessed light	set	215	
47	Recessed downlight	set	9	
48	downlight	set	41	
49	driveway wall light	set	12	
50	Controllable emergency lights	set	129	
51		piece	30	
52	Power cable	meter	1330	
53	Cable tray	meter	700	
54	Flexible Mineral Cable	meter	130	
55	Safety single-phase 2/3 with grounding pole concealed socket	set	61	
56	Safety single-phase 2/3 waterproof dark socket with grounding electrode	set	4	
57	Optical fiber distribution frame ODF	set	1	
58	Information main distribution frame	set	1	
59	Floor Information Distribution Frame	set	5	
60	switch	piece	22	
61	patch panel	piece	27	
62	Single hole information socket	piece	260	
63	Backbone cable	meter	300	
64	Backbone Copper	meter	500	

76,800	20%	15360	2304	2304	12096	576	32,640
1,200	20%	240	36	36	189	9	510
1,400	20%	280	42	42	221	11	595
4,000	20%	800	120	120	630	30	1,700
2,000	20%	400	60	60	315	15	850
400	20%	80	12	12	63	3	170
24,200	20%	4840	726	726	3812	182	10,285
600	20%	120	18	18	95	5	255
800	20%	160	24	24	126	6	340
10,000	20%	2000	300	300	1575	75	4,250
1,400	20%	280	42	42	221	11	595
49,800	20%	9960	1494	1494	7844	374	21,165
26,600	20%	5320	798	798	4190	200	11,305
4,400	20%	880	132	132	693	33	1,870
400	20%	80	12	12	63	3	170
40	20%	8	1	1	6	0	17
1,100	20%	220	33	33	173	8	468
1,100	20%	220	33	33	173	8	468
1,600	20%	320	48	48	252	12	680
20,600	20%	4120	618	618	3245	155	8,755
6,000	20%	1200	180	180	945	45	2,550
4,200	20%	840	126	126	662	32	1,785
600	20%	120	18	18	95	5	255
2,800	20%	560	84	84	441	21	1,190

65	Information dedicated metal trunking	meter	50	
66	Centralized fire alarm linkage controller and its supporting software	set	1	
67	Emergency lighting centralized controller	set	1	
68	smoke detector	piece	190	
69	temperature detector	piece	7	
70	Smart photoelectric smoke detector	piece	10	
71	manual alarm button	piece	19	
72	Short circuit isolation module	piece	25	
73	input module	piece	11	
74	Linkage output module	piece	20	
75	I/O module	piece	1	
76	Special metal module box	piece	1	
77	fire hydrant button	piece	26	
78	fire sound and light alarm	piece	39	
79	fire display panel	piece	6	
80	loud speaker	piece	43	
81	fire phone extension	set	7	
82	Floor terminal box	piece	7	
83	Special fireproof metal wire duct for fire alarm system	meter	100	
84	Special fireproof metal wire duct for fire alarm system	meter	300	
85	Residual current electrical fire monitoring system host and control software	set	1	
86	Residual current type electrical fire monitoring detector	piece	69	
87	Fire equipment power monitoring system control software	set	1	
88	Monitoring module	piece	47	

13,000	20%	2600	390	390	2048	98	5,525
18,800	20%	3760	564	564	2961	141	7,990
11,000	20%	2200	330	330	1733	83	4,675
11,800	5%	590	310	310	1626	89	2,924
800	5%	40	21	21	110	6	198
600	5%	30	16	16	83	5	149
600	5%	30	16	16	83	5	149
1,400	10%	140	39	39	202	11	430
600	10%	60	17	17	87	5	184
1,200	10%	120	33	33	173	9	368
80	10%	8	2	2	12	1	25
180	10%	18	5	5	26	1	55
820	5%	41	22	22	113	6	203
2,600	5%	130	68	68	358	20	644
7,600	5%	380	200	200	1047	57	1,883
2,000	20%	400	60	60	315	15	850
1,000	5%	50	26	26	138	8	248
1,000	20%	200	30	30	158	8	425
2,400	20%	480	72	72	378	18	1,020
3,800	20%	760	114	114	599	29	1,615
15,600	20%	3120	468	468	2457	117	6,630
28,000	5%	1400	735	735	3859	210	6,939
6,800	20%	1360	204	204	1071	51	2,890
8,000	10%	800	220	220	1155	60	2,455

89	Fire Door Monitoring System	piece	1	
90	Front-end equipment and software of security monitoring system	set	1	
91	Security monitoring system floor junction box	piece	5	
92	Security patch panel	set	1	
93	Camera installation and commissioning	piece	30	
94	Passive infrared alarm detector	set	9	
95	Access control system (including controller, card reader, door magnetic switch, electric door lock)	set	9	
96	Special fireproof metal wire duct for security monitoring system	piece	100	
97	Special fireproof metal wire duct for security monitoring system	meter	300	
98	Optical fiber distribution frame	set	1	
99	Floor Information Distribution Frame	set	2	
100	switch	piece	8	
101	patch panel	piece	8	
102	Optical fiber information socket	piece	2	
103	Single hole information socket	piece	12	
104	Double hole information socket	piece	12	
105	Backbone optical fiber	m	50	
106	Backbone Copper cable	m	50	
107	Smoke detector (including base)	piece	15	
108	Smart photoelectric smoke detector	piece	20	
109	manual alarm button	piece	4	
110	Short circuit isolation module	piece	7	
111	input module	piece	4	
112	Linkage output module HJ-1825	piece	5	

14,800	5%	740	389	389	2040	111	3,668
1,600	20%	320	48	48	252	12	680
1,600	20%	320	48	48	252	12	680
400	5%	20	11	11	55	3	99
11,200	20%	2240	336	336	1764	84	4,760
620	5%	31	16	16	85	5	154
13,000	20%	2600	390	390	2048	98	5,525
2,400	20%	480	72	72	378	18	1,020
4,600	20%	920	138	138	725	35	1,955
1,100	10%	110	30	30	159	8	338
600	20%	120	18	18	95	5	255
7,600	20%	1520	228	228	1197	57	3,230
1,800	20%	360	54	54	284	14	765
20	10%	2	1	1	3	0	6
120	20%	24	4	4	19	1	51
200	20%	40	6	6	32	2	85
120	10%	12	3	3	17	1	37
280	20%	56	8	8	44	2	119
1,000	5%	50	26	26	138	8	248
1,200	5%	60	32	32	165	9	297
120	5%	6	3	3	17	1	30
420	10%	42	12	12	61	3	129
240	10%	24	7	7	35	2	74
320	10%	32	9	9	46	2	98



113	I/O module	piece	4	
114	Special metal module box	piece	4	
115	fire hydrant button	piece	6	
116	fire sound and light alarm	piece	7	
117	fire display panel	piece	2	
118	loud speaker	piece	12	
119	fire phone extension	set	3	
120	Floor terminal box	piece	2	
121	Special fireproof metal wire duct for fire alarm system	m	50	
122	Residual current electrical fire monitoring system host and control software	set	1	
123	Residual current type electrical fire monitoring detector	piece	24	
124	Fire equipment power monitoring system control software	set	1	
125	Monitoring module	piece	24	
126	Fire Door Monitoring System	piece	1	
127	Security monitoring system floor junction box	piece	1	
128	Security switch	piece	1	
129	Security patch panel	set	1	
130	camera	piece	8	
131	Passive infrared alarm detector	set	6	
132	Access control system (including controller, card reader, door magnetic switch, electric door lock)	set	5	
133	Special fireproof metal wire duct for security monitoring system	meter	50	
134	Electrostatic range hood	piece	2	
135	Controllable emergency lights (including evacuation instructions)	set	410	

320	10%	32	9	9	46	2	98
680	20%	135	20	20	107	5	289
188	5%	9	5	5	26	1	47
480	5%	24	13	13	66	4	119
2,600	5%	130	68	68	358	20	644
580	20%	116	17	17	91	4	247
40	20%	8	1	1	6	0	17
220	20%	44	7	7	35	2	94
1,200	5%	60	32	32	165	9	297
9,000	20%	1800	270	270	1418	68	3,825
9,800	5%	490	257	257	1351	74	2,429
4,000	20%	800	120	120	630	30	1,700
4,200	5%	210	110	110	579	32	1,041
5,400	5%	270	142	142	744	41	1,338
320	5%	16	8	8	44	2	79
940	20%	188	28	28	148	7	400
460	5%	23	12	12	63	3	114
3,000	5%	150	79	79	413	23	743
420	5%	21	11	11	58	3	104
7,200	20%	1440	216	216	1134	54	3,060
1,200	5%	60	32	32	165	9	297
43,200	5%	2160	1134	1134	5954	324	10,706
32,000	20%	6400	960	960	5040	240	13,600

136	Emergency Lighting Controller	piece	1	
137	Local Equipotential Bonding Terminal Box	piece	168	
138	Safety single-phase 3-pole dark socket	set	200	
139	Safety single-phase 2/3 with grounding pole concealed socket	set	840	
140	Safety single-phase 2/3 waterproof dark socket with grounding electrode	set	360	
141	Optical fiber distribution frame	set	1	
142	Information main distribution frame	set	1	
143	Floor Information Distribution Frame	set	6	
144	switch	piece	20	
145	patch panel	piece	27	
146	Single hole information socket	piece	12	
147	Double hole information socket	piece	200	
148	Backbone cable	meter	300	
149	Backbone Copper cable	meter	500	
150	Information dedicated metal trunking	meter	100	
151	Information dedicated metal trunking	meter	300	
152	Centralized fire alarm linkage controller and its supporting software	set	1	
153	smoke detector	piece	238	
154	manual alarm button	piece	34	
155	Short circuit isolation module	piece	28	
156	input module	piece	13	
157	I/O module	piece	23	
158	fire hydrant button	piece	37	
159	fire sound and light alarm	piece	58	

3,200	20%	640	96	96	96	504	24	1,360
7,800	20%	1560	234	234	234	1229	59	3,315
1,400	20%	280	42	42	42	221	11	595
4,200	20%	840	126	126	126	662	32	1,785
3,600	20%	720	108	108	108	567	27	1,530
1,000	20%	200	30	30	30	158	8	425
1,000	20%	200	30	30	30	158	8	425
2,000	20%	400	60	60	60	315	15	850
6,000	20%	1200	180	180	180	945	45	2,550
120	20%	24	4	4	4	19	1	51
3,400	20%	680	102	102	102	536	26	1,445
660	20%	132	20	20	20	104	5	281
2,800	20%	560	84	84	84	441	21	1,190
4,400	20%	880	132	132	132	693	33	1,870
10,000	20%	2000	300	300	300	1575	75	4,250
18,800	20%	3760	564	564	564	2961	141	7,990
14,800	20%	2960	444	444	444	2331	111	6,290
1,000	5%	50	26	26	26	138	8	248
1,660	5%	83	44	44	44	229	12	411
820	10%	82	23	23	23	118	6	252
1,800	10%	180	50	50	50	260	14	552
1,200	10%	120	33	33	33	173	9	368
4,000	5%	200	105	105	105	551	30	991
7,600	5%	380	200	200	200	1047	57	1,883

160	fire display panel	piece	6
161	loud speaker	piece	55
162	fire phone extension	set	5
163	Floor terminal box	piece	6
164	Special fireproof metal wire duct for fire alarm system	meter	100
165	Special fireproof metal wire duct for fire alarm system	meter	300
166	Residual current electrical fire monitoring system host and control software	set	1
167	Residual current type electrical fire monitoring detector	piece	62
168	Fire equipment power monitoring system control software	set	1
169	Monitoring module	piece	105
170	Fire Door Monitoring System	piece	1
171	Front-end equipment and software of security monitoring system	set	1
172	Security monitoring system floor junction box	piece	6
173	Security patch panel	set	1
174	Camera installation and commissioning	piece	40
175	Passive infrared alarm detector	set	3
176	Access control system (including controller, card reader, door magnetic switch, electric door lock)	set	2
177	Special fireproof metal wire duct for security monitoring system	meter	100
178	Special fireproof metal wire duct for security monitoring system	meter	300
179	Fuel tanker trucks	set	300

2,600	5%	130	68	68	358	20	644
660	20%	132	20	20	104	5	281
2,400	5%	120	63	63	331	18	595
3,800	20%	760	114	114	599	29	1,615
15,600	5%	780	410	410	2150	117	3,866
25,200	5%	1260	662	662	3473	189	6,245
10,400	20%	2080	312	312	1638	78	4,420
18,000	5%	900	473	473	2481	135	4,461
14,800	20%	2960	444	444	2331	111	6,290
1,560	10%	156	43	43	225	12	479
1,860	5%	93	49	49	256	14	461
460	5%	23	12	12	63	3	114
15,000	5%	750	394	394	2067	113	3,717
200	5%	10	5	5	28	2	50
2,800	5%	140	74	74	386	21	694
2,400	5%	120	63	63	331	18	595
4,600	5%	230	121	121	634	35	1,140
4,000	5%	200	105	105	551	30	991
4,400	5%	220	116	116	606	33	1,090
28,500,000	5%	1425000	748125	748125	3927656	213750	7,062,656

TOTAL				

407,544,821      34128464   10567348   10567348   55478575   3056586   113,798,320

**CERTIFICATE**

TOTAL TAX LIABILITY=113,798,320US DOLLARS

This is to certify that the assessment given is true and correct.

Signature: *[Signature]*

Importer/Agent's Name & Designation: *Ciclon Tito Director*

For Official Use

Signature: *[Signature]*

Assessment rechecked and found correct and complete.

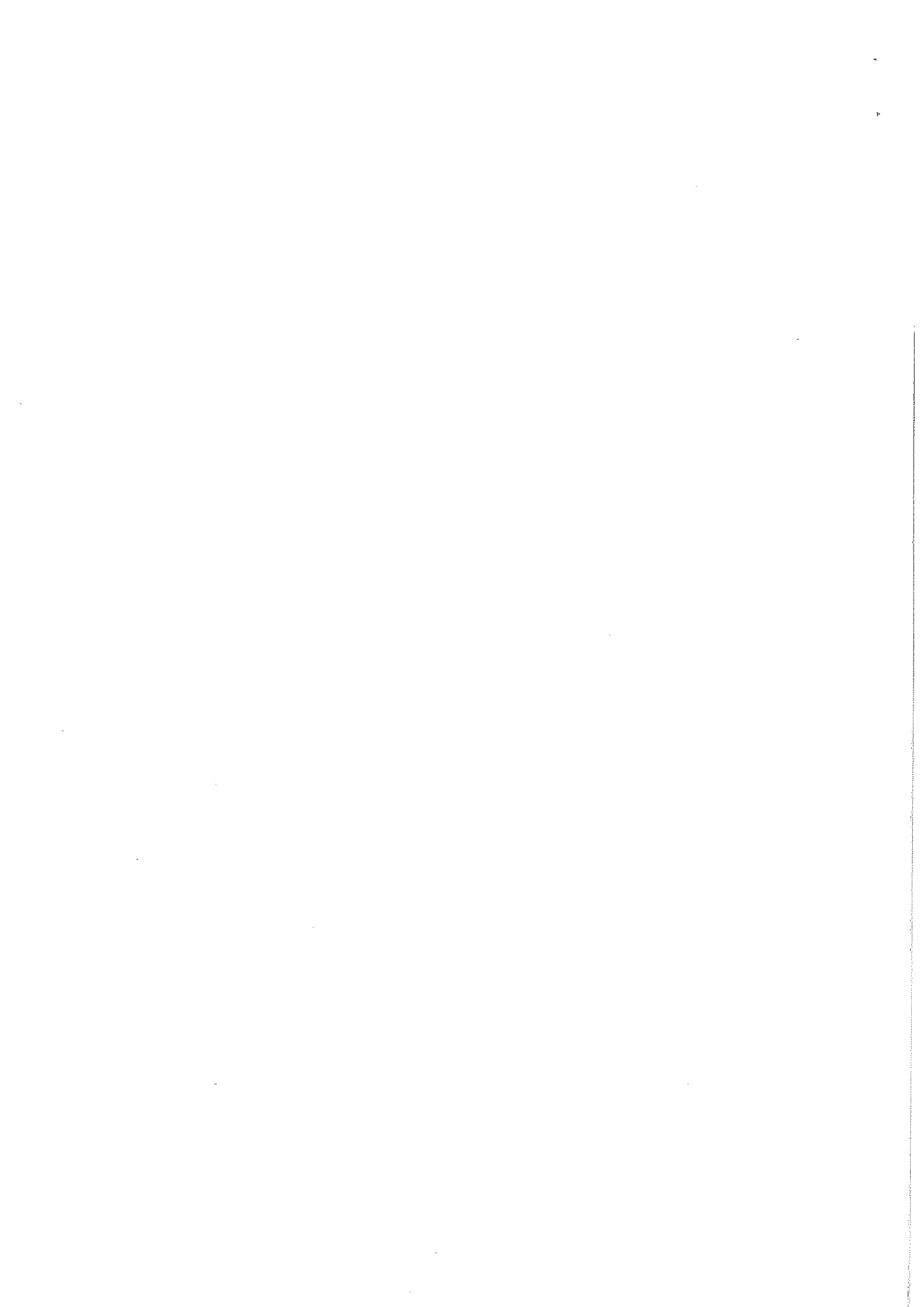
.....20-10-2022.....

Date

OFFICE'S Name & Rank:- GIDEON GLEY  
(SNR REV. OFFICER)

ACCRA

# **MASTER LIST TAX ASSESSMENT**



**TAX ASSESSMENT**  
**PHASE II MASTER LIST OF MACHINERY-SENTUO OIL REFINERY**

Description of Items	unit	Qty	CIF (USD)	I/D Rate	Imp. Duty	NHIL 2.5%	Gfund Levy 2.5%	Imp. VAT 12.5%	Exim Levy 0.75%	TOTAL (USD)
<b>3 MTPA Atmospheric Distillation Unit</b>										
steel structure	ton	1,176.10	1,395,960	20%	279192	41879	41879	219864	10470	593,283
Primary distillation tower	set	1.00	851,037	5%	42552	0	0	0	6383	48,935
Atmospheric tower	set	1.00	1,702,481	5%	85124	0	0	0	12769	97,893
Atmospheric stripper	set	1.00	435,083	5%	21754	0	0	0	3263	25,017
Primary electric desalting tank	set	1.00	657,712	20%	131542	19731	19731	103590	4933	279,528
Secondary electric desalting tank	set	1.00	657,712	20%	131542	19731	19731	103590	4933	279,528
Initial top reflux and product tank	set	1.00	213,675	20%	42735	6410	6410	33654	1603	90,812
Atmospheric overhead reflux and product tank	set	1.00	76,923	20%	15385	2308	2308	12115	577	32,692
Fuel gas knock-out drum	set	1.00	13,838	20%	2768	415	415	2179	104	5,881
Electric desalting water cut oil tank	set	1.00	41,107	20%	8221	1233	1233	6474	308	17,470
Low pressure gas knockout drum	set	1.00	13,838	20%	2768	415	415	2179	104	5,881
Demulsifier tank	set	1.00	28,897	20%	5779	867	867	4551	217	12,281
Inhibitor tank	set	1.00	38,258	20%	7652	1148	1148	6026	287	16,260
Inhibitor tank	set	1.00	30,525	20%	6105	916	916	4808	229	12,973
Flare condensate hydraulic delivery tank	set	1.00	13,024	20%	2605	391	391	2051	98	5,535
Crude oil primary overhead oil gas heat exchanger	set	2.00	491,249	5%	24562	0	0	0	3684	28,247
Crude oil - atmospheric overhead oil gas heat exchanger	set	1.00	378,510	5%	18926	0	0	0	2839	21,764
Crude oil - atmospheric overhead circulating heat exchanger	set	2.00	452,584	5%	22629	0	0	0	3394	26,024
Heat exchanger of crude oil - atmospheric second line (II)	set	2.00	258,038	5%	12902	0	0	0	1935	14,837
Crude oil atmospheric first line heat exchanger	set	2.00	368,742	5%	18437	0	0	0	2766	21,203

Heat exchanger of crude oil – atmospheric third line (III)	set	1.00	197,802	5%	9890	0	0	0	0	1484	11,374
Crude oil atmospheric residue (V) heat exchanger	set	1.00	158,323	5%	7916	0	0	0	0	1187	9,104
Crude oil atmospheric residue (IV) heat exchanger	set	2.00	257,224	5%	12861	0	0	0	0	1929	14,790
Heat exchanger of crude oil – atmospheric second line (I)	set	2.00	578,754	5%	28938	0	0	0	0	4341	33,278
Crude oil - atmospheric No.2 Intermediate (II) heat exchanger	set	1.00	361,009	5%	18050	0	0	0	0	2708	20,758
Crude oil - No.1 intermediate heat exchanger	set	2.00	452,584	5%	22629	0	0	0	0	3394	26,024
Heat exchanger of crude oil – atmospheric third line (II)	set	2.00	364,265	5%	18213	0	0	0	0	2732	20,945
Crude oil atmospheric residue (III) heat exchanger	set	2.00	315,832	5%	15792	0	0	0	0	2369	18,160
Crude oil atmospheric residue (II) heat exchanger	set	4.00	632,478	5%	31624	0	0	0	0	4744	36,367
Primary bottom oil - heat exchanger of No.2 Middle Pressure unit (I)	set	2.00	1,290,190	5%	64510	0	0	0	0	9676	74,186
Primary bottom oil - atmospheric third line (I) heat exchanger	set	1.00	1,009,360	5%	50468	0	0	0	0	7570	58,038
Primary bottom oil atmospheric residue (I) heat exchanger	set	2.00	578,754	5%	28938	0	0	0	0	4341	33,278
Crude oil - heat exchanger in the first stage	set	2.00	358,567	5%	17928	0	0	0	0	2689	20,618
Primary overhead oil-gas cooler	set	2.00	350,020	5%	17501	0	0	0	0	2625	20,126
Overhead oil and gas cooler	set	1.00	371,998	5%	18600	0	0	0	0	2790	21,390
Straight run diesel water cooler	set	2.00	98,901	5%	4945	0	0	0	0	742	5,687
Straight run kerosene water cooler	set	2.00	452,991	5%	22650	0	0	0	0	3397	26,047
Atmospheric residue heat medium water heat exchanger	set	2.00	132,682	5%	6634	0	0	0	0	995	7,629
Straight run naphtha oil-water cooler	set	1.00	128,612	5%	6431	0	0	0	0	965	7,395



Atmospheric first line Reboiler	set	1.00		128,612	5%	6431	0	0	0	0	965	7,395
Electric desalting water injection cut water heat exchanger	set	2.00		452,991	5%	22650	0	0	0	0	3397	26,047
Saline sewage cooler	set	2.00		265,364	5%	13268	0	0	0	0	1990	15,258
Seating oil heat medium water heat exchanger	set	2.00		265,364	5%	13268	0	0	0	0	1990	15,258
Primary overhead oil gas air cooler	set	3.00		331,705	5%	16585	0	0	0	0	2488	19,073
Atmospheric overhead oil gas air cooler	set	2.00		213,268	5%	10663	0	0	0	0	1600	12,263
Primary electric desalting circulating water injection pump	set	2.00		73,260	5%	3663	1923	1923	10096	549		18,155
Initial top reflux and product pump	set	2.00		129,426	5%	6471	3397	3397	17837	971		32,073
Primary bottom oil pump	set	2.00		223,850	5%	11193	5876	5876	30849	1679		55,473
Atmospheric overhead reflux and product pump	set	2.00		195,360	5%	9768	5128	5128	26923	1465		48,413
Atmospheric first line pump	set	2.00		152,625	5%	7631	4006	4006	21034	1145		37,822
Atmospheric second line pump	set	2.00		152,625	5%	7631	4006	4006	21034	1145		37,822
Atmospheric third line pump	set	2.00		173,382	5%	8669	4551	4551	23894	1300		42,966
Atmospheric top circulating pump	set	3.00		260,073	5%	13004	6827	6827	35841	1951		64,449
Atmospheric first middle pump	set	3.00		173,382	5%	8669	4551	4551	23894	1300		42,966
Atmospheric second middle pump	set	2.00		173,382	5%	8669	4551	4551	23894	1300		42,966
Atmospheric residue oil pump	set	2.00		244,200	5%	12210	6410	6410	33654	1832		60,516
Side line oil pump	set	2.00		51,282	5%	2564	1346	1346	7067	385		12,708
Electric desalting and desalting oil pump	set	1.00		51,282	5%	2564	1346	1346	7067	385		12,708
Demulsifier pump	set	3.00		97,680	5%	4884	2564	2564	13462	733		24,206
Ammonia water pump	set	2.00		73,260	5%	3663	1923	1923	10096	549		18,155
Inhibitor pump	set	4.00		130,240	5%	6512	3419	3419	17949	977		32,275
Primary top sulfur-containing sewage pump	set	2.00		73,260	5%	3663	1923	1923	10096	549		18,155
Atmospheric overhead sour sewage pump	set	2.00		73,260	5%	3663	1923	1923	10096	549		18,155
Non condensing gas liquid ring pump	set	2.00		504,680	5%	25234	13248	13248	69551	3785		125,066
Blower	set	1.00		20,350	5%	1018	0	0	0	153		1,170
Induced draft fan	set	1.00		20,350	5%	1018	0	0	0	153		1,170

Primary electric desalting water injection mixer	set	1.00		4,070	5%	204	0	0	0	0	31	234
Two stage electric desalting water injection mixer	set	1.00		4,070	5%	204	0	0	0	0	31	234
1.0MPa superheated steam silencer nozzle DN200	set	1.00		2,035	5%	102	0	0	0	0	15	117
High pressure fuel gas flame arrester of atmospheric furnace	set	2.00		4,070	5%	204	0	0	0	0	31	234
Atmospheric furnace pilot light flame arrester	set	2.00		4,070	5%	204	0	0	0	0	31	234
Atmospheric furnace low pressure fuel gas flame arrester	set	2.00		4,070	5%	204	0	0	0	0	31	234
Mixed crude oil sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Primary mixed crude oil sampler after dehydration	set	1.00		407	5%	20	0	0	0	0	3	23
Primary electric desalting quintuple sampling cooler	set	1.00		407	5%	20	0	0	0	0	3	23
Mixed crude oil sampler after secondary dehydration	set	1.00		407	5%	20	0	0	0	0	3	23
Secondary electric desalting five connection sampling cooler	set	1.00		407	5%	20	0	0	0	0	3	23
Initial top non condensable gas sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Initial top oil sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Atmospheric top non condensable gas sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Atmospheric overhead oil sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Atmospheric first line oil sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Atmospheric second line oil sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Atmospheric third line oil sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Straight run diesel sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Atmospheric residue sampler	set	1.00		407	5%	20	0	0	0	0	3	23
Electric desalting water cut tank sampling tank	set	1.00		1,221	20%	244	37	37	192	9	519	

Atmospheric furnace	set	1.00	1,726,087	5%	86304	0	0	0	12946	99,250
Union heat recovery system	set	1.00	1,836,791	5%	91840	0	0	0	13776	105,615
First -level electric salt tank top safety valve	set	2.00	8,800	10%	880	242	242	1271	66	2,701
Two -level electric salt tank top safety valve	set	2.00	8,800	10%	880	242	242	1271	66	2,701
Safety valve at the top of the first distillation tower	set	3.00	22,000	10%	2200	605	605	3176	165	6,751
Early Top Return and Product Tank Safety Valve	set	2.00	13,200	10%	1320	363	363	1906	99	4,051
Safety valve on the top of the normal pressure tower	set	2.00	15,400	10%	1540	424	424	2223	116	4,726
Chang Ding Back Return Bar can safety valve	set	2.00	13,200	10%	1320	363	363	1906	99	4,051
Electric dehydration water cutting tank safety valve	set	2.00	3,300	10%	330	91	91	476	25	1,013
Fuel gas split liquid tank top safety valve	set	2.00	3,960	10%	396	109	109	572	30	1,215
1.0MPa overheated steam safety valve	set	2.00	15,400	10%	1540	424	424	2223	116	4,726
Carbon steel pipeline	M	25,349.00	486,860	5%	24343	12780	12780	67095	3651	120,650
Alloy steel pipeline	M	873.00	131,010	5%	6551	3439	3439	18055	983	32,466
Stainless steel pipeline	M	1,111.50	532,400	5%	26620	13976	13976	73371	3993	131,935
Craft valve	piec e	3,522.00	1,354,980	10%	135498	37262	37262	195625	10162	415,809
Pipeline	M	13,141.00	112,970	5%	5649	2965	2965	15569	847	27,995
Pad	piec e	7,644.00	78,870	5%	3944	2070	2070	10869	592	19,545
Flang	piec e	7,421.00	102,080	20%	20416	3062	3062	16078	766	43,384
bolt	set	41,004.00	352,330	20%	70466	10570	10570	55492	2642	149,740
Safety valve	piec e	27.00	134,420	10%	13442	3697	3697	19407	1008	41,250
Anticorrosive material	ton	9.50	9,900	10%	990	272	272	1429	74	3,038
Insulation materials	M3	475.00	40,920	10%	4092	1125	1125	5908	307	12,557

Fireproof Materials	ton	19.23	63,470	20%	12694	1904	1904	9997	476	26,975
Pipeline ground	M	100.00	880	20%	176	26	26	139	7	374
Electrical cable	M	29,655.00	454,520	20%	90904	13636	13636	71587	3409	193,171
Cable tray	ton	14.50	15,070	20%	3014	452	452	2374	113	6,405
Lighting lamp	set	389.00	124,960	20%	24992	3749	3749	19681	937	53,108
Lightning -proof copper connection	M	685.00	10,450	20%	2090	314	314	1646	78	4,441
Galvanized flat steel connecting ground wire	M	3,250.00	4,510	20%	902	135	135	710	34	1,917
Grounding	piec e	27.00	5,280	20%	1056	158	158	832	40	2,244
Bimetallic thermometer	piec e	72.00	11,880	5%	594	312	312	1637	89	2,944
Armor temperature component single support	piec e	94.00	23,265	5%	1163	611	611	3206	174	5,765
Pretending temperature element	piec e	14.00	3,465	5%	173	91	91	478	26	859
Pressure gauge	piec e	137.00	5,610	5%	281	147	147	773	42	1,390
Pressure Transmitters	set	60.00	99,000	5%	4950	2599	2599	13643	743	24,533
Differential pressure transmitter	set	41.00	67,650	5%	3383	1776	1776	9323	507	16,765
Throttling device	set	39.00	64,350	5%	3218	1689	1689	8868	483	15,947
Wedge flowmeter	set	12.00	198,000	5%	9900	5198	5198	27287	1485	49,067
Rotor flow meter	set	1.00	5,775	5%	289	152	152	796	43	1,431
Vortex flow meter	set	7.00	11,550	5%	578	303	303	1592	87	2,862
Electromagnetic Flowmeter	set	2.00	4,950	5%	248	130	130	682	37	1,227
Volume flowmeter	set	4.00	79,200	5%	3960	2079	2079	10915	594	19,627
Korio's quality flow meter	set	3.00	99,000	5%	4950	2599	2599	13643	743	24,533
Glass plate liquid position	set	11.00	6,600	5%	330	173	173	910	50	1,636
Differential pressure liquid level transmitter	set	11.00	18,150	5%	908	476	476	2501	136	4,498
Floch liquid level meter	set	2.00	9,900	5%	495	260	260	1364	74	2,453
Floating ball liquid level meter	set	12.00	19,800	5%	990	520	520	2729	149	4,907
Back gas and toxic gas detector	set	40.00	99,000	5%	4950	2599	2599	13643	743	24,533

Regulating valve	piec e	38.00	519,860	10%	51986	14296	14296	14296	75055	3899	159,532
Pneumatic switch valve	piec e	5.00	55,000	10%	5500	1513	1513	1513	7941	413	16,878
Self -force adjustment valve	piec e	2.00	22,000	10%	2200	605	605	605	3176	165	6,751
Meter pipeline	M	7,603.00	46,200	5%	2310	1213	1213	1213	6367	347	11,449
Instrumental valve	piec e	374.00	189,200	10%	18920	5203	5203	5203	27316	1419	58,061
Instrument cable	M	#####	96,360	20%	19272	2891	2891	2891	15177	723	40,953
Water supply drainage pipeline	M	1,045.00	29,370	20%	5874	881	881	881	4626	220	12,482
Water -giving valve	piec e	10.00	6,600	10%	660	182	182	182	953	50	2,025
Fire Protection and Fire Cannon	set	21.00	5,390	5%	270	141	141	141	743	40	1,336
Fireproof	set	106.00	1,320	5%	66	35	35	35	182	10	327
eye washer	set	5.00	9,240	20%	1848	277	277	277	1455	69	3,927
Enhancer	ton	130.00	810,000	5%	40500	21263	21263	21263	111628	6075	200,728
Erosion	ton	45.00	351,000	5%	17550	9214	9214	9214	48372	2633	86,982
<b>1 MTPA Fluid Catalytic Cracking Unit</b>			0		0	0	0	0	0	0	-
Steel Structure	ton	2,858.40	2,860,440	20%	572088	85813	85813	85813	450519	21453	1,215,687
Reaction settler	set	1.00	932,250	5%	46613	24472	24472	24472	128476	6992	231,023
Heavy oil coarse whirlwind separator	set	3.00	194,563	5%	9728	0	0	0	0	1459	11,187
Heavy oil efficient single -level whirlwind separator	set	3.00	243,238	5%	12162	0	0	0	0	1824	13,986
Oblique tube	piec e	1.00	57,750	5%	2888	0	0	0	0	433	3,321
Regenerator	set	1.00	2,432,100	5%	121605	0	0	0	0	18241	139,846
Regenerator high -efficiency first -level cyclone separator	set	12.00	851,263	5%	42563	0	0	0	0	6384	48,948
Regenerator high -efficiency secondary whirlwind separator	set	12.00	851,263	5%	42563	0	0	0	0	6384	48,948
Diseel secondary rotor wing valve	set	12.00	66,000	10%	6600	0	0	0	0	495	7,095

Outer cyclum tube	piec e	1.00	88,688	5%	4434	0	0	0	0	665	5,100
A period of recycled oblique tube	piec e	1.00	62,563	5%	3128	0	0	0	0	469	3,597
Second -stage recycling oblique tube	piec e	1.00	53,488	5%	2674	0	0	0	0	401	3,076
Raise tube reactor	piec e	1.00	378,813	5%	18941	0	0	0	0	2841	21,782
Raw oil inlet nozzle	piec e	6.00	15,125	5%	756	0	0	0	0	113	870
Second -stage enhancement tube reactor	piec e	1.00	274,863	5%	13743	0	0	0	0	2061	15,805
Return to refining feeding nozzle	piec e	2.00	5,088	5%	254	0	0	0	0	38	293
Retrimly anti -cold oil inlet nozzle	piec e	2.00	5,088	5%	254	0	0	0	0	38	293
1#Outer heat device	set	1.00	2,632,713	5%	131636	0	0	0	0	19745	151,381
2#Outer heat device	set	1.00	2,632,713	5%	131636	0	0	0	0	19745	151,381
LNG sulfoline sulfur washing alcohol pickup reactor	set	1.00	304,013	5%	15201	0	0	0	0	2280	17,481
Washing fiber liquid film reactor	set	1.00	304,013	5%	15201	0	0	0	0	2280	17,481
Alkaline solution anti -pump reactor	set	1.00	304,013	5%	15201	0	0	0	0	2280	17,481
Oxidation tower	set	1.00	195,525	5%	9776	0	0	0	0	1466	11,243
Cold catalyst	set	1.00	103,813	10%	10381	2855	2855	14988	779	779	31,858
Catalyst	set	1.00	103,813	10%	10381	2855	2855	14988	779	779	31,858
Abolition catalyst	set	1.00	643,775	10%	64378	17704	17704	92945	4828	4828	197,558
Flue gas sealing tank	set	1.00	16,500	20%	3300	495	495	2599	124	124	7,013
Burning agent	set	1.00	2,750	5%	138	72	72	379	21	21	681
Burning agent plus tank	set	1.00	138	20%	28	4	4	22	1	1	59
Regenerative flue gas booming hole board	set	1.00	64,900	5%	3245	1704	1704	8944	487	487	16,083
Regenerative flue gas critical flow rate nozzle	set	1.00	20,625	5%	1031	541	541	2842	155	155	5,111

Catalyst	set	1.00		963	10%	96	26	26	139	7	296
Fractional tower	set	1.00		2,918,575	5%	145929	0	0	0	21889	167,818
Light diesel steam Tower	set	1.00		214,775	5%	10739	0	0	0	1611	12,350
Absorbing tower	set	1.00		875,600	5%	43780	0	0	0	6567	50,347
Solving tower	set	1.00		1,438,938	5%	71947	0	0	0	10792	82,739
Re-absorbing tower	set	1.00		375,788	5%	18789	0	0	0	2818	21,608
Stable tower	set	1.00		1,862,300	5%	93115	0	0	0	13967	107,082
Liquefied gas desulfurization pumping tower	set	1.00		757,625	5%	37881	0	0	0	5682	43,563
Dry gas desulfurization tower	set	1.00		722,563	5%	36128	0	0	0	5419	41,547
High-temperature flue gas seal can	set	1.00		4,125	5%	206	0	0	0	31	237
Nitrogen tank	set	1.00		10,588	20%	2118	318	318	1668	79	4,500
Putting the pot in light oil	set	1.00		6,188	5%	309	162	162	853	46	1,533
Solve oil separation tank	set	1.00		18,425	20%	3685	553	553	2902	138	7,831
Alkaline solution anti-pumping sinking jar	set	1.00		18,425	5%	921	484	484	2539	138	4,566
Solve oil buffer jar	set	1.00		11,000	20%	2200	330	330	1733	83	4,675
Tail gas liquid tank	set	1.00		8,938	20%	1788	268	268	1408	67	3,799
Cold catalyst tank top whirlwind separator	set	1.00		3,025	5%	151	0	0	0	23	174
Waste catalyst tank top whirlwind separator	set	1.00		3,025	5%	151	0	0	0	23	174
The hot catalyst tank top whirlwind separator	set	1.00		3,025	5%	151	0	0	0	23	174
Three-level whirlwind separator	set	1.00		16,775	5%	839	0	0	0	126	965
Level 4 whirlwind separator	set	1.00		16,775	5%	839	0	0	0	126	965
Purify and compress the air can one	set	1.00		11,688	20%	2338	351	351	1841	88	4,967
Purify and compress the air tank two	set	1.00		11,688	20%	2338	351	351	1841	88	4,967
Non-purified compressed air can	set	1.00		11,688	20%	2338	351	351	1841	88	4,967
Chemical pot	set	1.00		3,300	20%	660	99	99	520	25	1,403
Tank	set	1.00		3,300	20%	660	99	99	520	25	1,403
Put the torch condensate hydraulic delivery can	set	1.00		3,438	20%	688	103	103	541	26	1,461

Three -rotating recycling catalyst storage tank	set	1.00		10,863	20%	2173	326	326	1711	81	4,617
Low -pressure precipitation seal	set	1.00		54,863	0%	0	0	0	0	411	411
Division tower top oil gas separator	set	1.00		99,000	5%	4950	0	0	0	743	5,693
Raw oil tank/back refining can	set	2.00		87,175	20%	17435	2615	2615	13730	654	37,049
Oil tank	set	1.00		74,800	20%	14960	2244	2244	11781	561	31,790
Vileer export oil and gas separator	set	1.00		76,588	5%	3829	0	0	0	574	4,404
Stabilize tower top backbone can	set	1.00		66,963	20%	13393	2009	2009	10547	502	28,459
Dry gas liquid tank	set	1.00		33,550	20%	6710	1007	1007	5284	252	14,259
Vileer export oil and gas separator	set	1.00		99,275	5%	4964	0	0	0	745	5,708
1#External heat medium pressure vapor water separator	set	1.00		84,150	5%	4208	0	0	0	631	4,839
2#External heat medium pressure vapor water separator	set	1.00		75,900	5%	3795	0	0	0	569	4,364
High -temperature flue gas seal can	set	1.00		60,500	5%	3025	0	0	0	454	3,479
Steam splitter	set	1.00		5,500	5%	275	0	0	0	41	316
Put the torch gas separation tank	set	1.00		66,963	5%	3348	0	0	0	502	3,850
Getfing heat bay	set	1.00		66,550	5%	3328	0	0	0	499	3,827
Pressing soda separator in the slurry	set	2.00		48,813	5%	2441	0	0	0	366	2,807
II medium pressure soda separator	set	1.00		17,875	5%	894	0	0	0	134	1,028
Regular sewage expansion container	set	1.00		10,450	5%	523	0	0	0	78	601
Main flue water seal	set	1.00		49,913	0%	0	0	0	0	374	374
Best flue water sealing tank	set	1.00		32,588	20%	6518	0	0	0	244	6,762
Low -voltage steam splitter	set	1.00		1,375	5%	69	0	0	0	10	79
Nitrogen buffer	set	1.00		3,988	5%	199	0	0	0	30	229
Continuous sewage expansion container	set	1.00		9,075	5%	454	0	0	0	68	522
Mid -pressing steam water signs (1)	set	1.00		2,338	5%	117	0	0	0	18	134
Mid -pressing steam water signs (2)	set	1.00		4,675	5%	234	0	0	0	35	269
Oxygen	set	1.00		113,025	5%	5651	2967	2967	15576	848	28,009
Great media water buffer jar	set	1.00		18,563	5%	928	487	487	2558	139	4,600
Alkali	set	1.00		2,613	5%	131	69	69	360	20	648
Dilute base	set	1.00		16,775	5%	839	440	440	2312	126	4,157
Slag reduction	set	1.00		16,775	5%	839	440	440	2312	126	4,157



Seal	set	1.00		413	0%	0	0	0	0	0	0	0	0	0	3	3
Purifying dry gas separation tank	set	1.00		47,163	5%	2358	1238	1238	6500	1238	6500	1238	6500	1238	354	11,688
LNG	set	1.00		57,888	5%	2894	1520	1520	7978	1520	7978	1520	7978	434	14,345	14,345
Washed sinking tank	set	1.00		57,888	5%	2894	1520	1520	7978	1520	7978	1520	7978	434	14,345	14,345
Liquefied gas polymer	set	1.00		1,375	5%	69	36	36	189	36	189	36	189	10	341	341
Cold catalyst tank top whirlwind separator	set	1.00		1,375	5%	69	0	0	0	0	0	0	0	10	79	79
The hot catalyst tank top whirlwind separator	set	1.00		1,375	5%	69	0	0	0	0	0	0	0	10	79	79
Waste catalyst tank top whirlwind separator	set	1.00		1,375	5%	69	0	0	0	0	0	0	0	10	79	79
External heat device sampling cooler	set	1.00		688	5%	34	0	0	0	0	0	0	0	5	40	40
Plasm producing steam water sampling cooler	set	2.00		688	5%	34	0	0	0	0	0	0	0	5	40	40
Residual heat boiler sampling cooler	set	1.00		688	5%	34	0	0	0	0	0	0	0	5	40	40
Oxygen	set	1.00		23,100	5%	1155	606	606	3183	606	3183	606	3183	173	5,724	5,724
Abolition catalyst	set	1.00		110,000	10%	11000	3025	3025	15881	3025	15881	3025	15881	825	33,756	33,756
Light diesel-heat media water heat exchanger	set	2.00		97,763	5%	4888	2566	2566	13473	2566	13473	2566	13473	733	24,227	24,227
Untitting the bottom of the pagoda bottom heavier	set	1.00		62,563	5%	3128	1642	1642	8622	1642	8622	1642	8622	469	15,504	15,504
Dry cooler	set	1.00		22,825	5%	1141	599	599	3146	599	3146	599	3146	171	5,656	5,656
Division Tower Top Oil and Gas-Hot-media Water Hashor	set	6.00		363,000	5%	18150	9529	9529	50026	9529	50026	9529	50026	2723	89,956	89,956
Division tower top oil gas condenser cooler	set	6.00		363,000	5%	18150	9529	9529	50026	9529	50026	9529	50026	2723	89,956	89,956
Top cycle backflow oil-heat media water heat exchanger	set	2.00		60,500	5%	3025	1588	1588	8338	1588	8338	1588	8338	454	14,993	14,993
Plasm-Division No. 1 Middle School heat exchanger	set	1.00		129,938	5%	6497	3411	3411	17907	3411	17907	3411	17907	975	32,200	32,200
Ingredient oil-light diesel heat exchanger	set	2.00		85,250	5%	4263	2238	2238	11749	2238	11749	2238	11749	639	21,126	21,126
Ingredient oil-light diesel heat exchanger	set	2.00		85,250	5%	4263	2238	2238	11749	2238	11749	2238	11749	639	21,126	21,126
Raw Oil-One Mid-Section of Oil Switch	set	2.00		60,500	5%	3025	1588	1588	8338	1588	8338	1588	8338	454	14,993	14,993

Raw Oil-One Mid-Section of Oil Switch	set	2.00		60,500	5%	3025	1588	1588	8338	454	14,993
Slurry cooler	set	2.00		52,250	5%	2613	1372	1372	7201	392	12,948
Return oil in the middle of the distillation tower-circulating pulp heat exchanger	set	1.00		60,500	5%	3025	1588	1588	8338	454	14,993
Light diesel-rich inhalation oil and heat exchange device	set	1.00		34,375	5%	1719	902	902	4737	258	8,519
Light diesel-heat media water heat exchanger	set	2.00		114,538	5%	5727	3007	3007	15785	859	28,384
Poor oil -absorbing cooler	set	1.00		30,525	5%	1526	801	801	4207	229	7,564
Division of the first section of the return oil-heat media water heat exchange device	set	1.00		121,000	5%	6050	3176	3176	16675	908	29,985
Back to refining-raw material oil exchange hotter	set	1.00		4,125	5%	206	108	108	568	31	1,022
Ingredient oil-circulating pulp heat exchanger	set	1.00		60,500	5%	3025	1588	1588	8338	454	14,993
Pulfid steam generator	set	2.00		363,000	5%	18150	9529	9529	50026	2723	89,956
Pulfid steam generator	set	1.00		30,250	5%	1513	794	794	4169	227	7,496
Products of pulp cooler	set	1.00		24,750	5%	1238	650	650	3411	186	6,133
Product Plasm-Hot Media Water Hashor	set	4.00		10,588	5%	529	278	278	1459	79	2,624
Compressed rich condensation coolingler	set	4.00		242,000	5%	12100	6353	6353	33351	1815	59,971
Absorption of backflow cooler in the second section of the tower	set	2.00		68,750	5%	3438	1805	1805	9475	516	17,037
Absorbing Tower II Mid -Section Cooling	set	2.00		31,625	5%	1581	830	830	4358	237	7,837
The middle heavy boiling device in the middle of the suction tower	set	1.00		11,963	5%	598	314	314	1649	90	2,965
Stabilize gasoline-remove salt water heat exchanger	set	2.00		68,750	5%	3438	1805	1805	9475	516	17,037
Removal tower feed heat exchange heat	set	1.00		34,375	5%	1719	902	902	4737	258	8,519
Untitting the bottom of the pagoda bottom heavier	set	1.00		18,700	5%	935	491	491	2577	140	4,634

Stable tower feeding heat exchange heat	set	1.00		42,625	5%	2131	1119	1119	5874	320	10,563
Stable Tower bottom heavy boiling device	set	2.00		121,000	5%	6050	3176	3176	16675	908	29,985
Stable tower top oil and gas condensate cooler	set	4.00		242,000	5%	12100	6353	6353	33351	1815	59,971
Stabilize gasoline cooler	set	2.00		63,250	5%	3163	1660	1660	8717	474	15,674
Stabilize gasoline cooler	set	2.00		68,750	5%	3438	1805	1805	9475	516	17,037
Coarse gasoline-frozen water heat exchanger	set	1.00		31,625	5%	1581	830	830	4358	237	7,837
Supplementary absorbent cooler	set	1.00		24,750	5%	1238	650	650	3411	186	6,133
Middle cooler in the air pressure machine	set	1.00		60,500	5%	3025	1588	1588	8338	454	14,993
Great media water cooler	set	2.00		121,000	5%	6050	3176	3176	16675	908	29,985
Great media water heating device	set	1.00		19,800	5%	990	520	520	2729	149	4,907
Boiler feed water preheating device	set	1.00		11,138	5%	557	292	292	1535	84	2,760
Alkali heating device	set	1.00		10,313	5%	516	271	271	1421	77	2,556
Alkaline liquid cooler	set	2.00		41,250	5%	2063	1083	1083	5685	309	10,222
Hot media water-removing saline heat exchanger	set	2.00		5,363	5%	268	141	141	739	40	1,329
Fuel gas heating device	set	1.00		11,413	5%	571	300	300	1573	86	2,828
Cold device on top of the distilled tower	set	8.00		368,638	5%	18432	9677	9677	50803	2765	91,353
Light diesel air -cooler	set	2.00		73,150	5%	3658	1920	1920	10081	549	18,127
Division tower top oil gas dry air cooling device	set	12.00		330,000	5%	16500	8663	8663	45478	2475	81,778
Top circulating oil air cooler	set	2.00		92,125	5%	4606	2418	2418	12696	691	22,830
Light diesel dry air cooling device	set	1.00		35,750	5%	1788	938	938	4927	268	8,859
Compressed and dry air cooling device	set	4.00		146,850	5%	7343	3855	3855	20238	1101	36,391
Stable tower top oil and gas dry air -cooler	set	6.00		284,213	5%	14211	7461	7461	39168	2132	70,432
Stable gasoline dry air -cooler	set	2.00		75,625	5%	3781	1985	1985	10422	567	18,741
Liquid ring vacuum pump	set	1.00		446,875	5%	22344	11730	11730	61585	3352	110,741
Ingredient oil pump	set	2.00		149,325	5%	7466	3920	3920	20579	1120	37,005
Rough gasoline pump	set	2.00		71,500	5%	3575	1877	1877	9854	536	17,719

Division tower top cycle pump	set	2.00		86,900	5%	4345	2281	2281	11976	652	21,535
Light diesel pump	set	2.00		82,500	5%	4125	2166	2166	11370	619	20,445
Poor absorbing oil pump	set	2.00		77,000	5%	3850	2021	2021	10612	578	19,082
Retinning oil pump in the middle of the distillation tower	set	2.00		113,025	5%	5651	2967	2967	15576	848	28,009
Back to refine pump	set	2.00		171,875	5%	8594	4512	4512	23687	1289	42,593
Two Middle and Back Refining Pump	set	2.00		177,375	5%	8869	4656	4656	24444	1330	43,956
Rich Water Washing Pump	set	2.00		90,750	5%	4538	2382	2382	12506	681	22,489
Oil-sealing pump	set	2.00		77,825	5%	3891	2043	2043	10725	584	19,286
Removal pump	set	2.00		93,500	5%	4675	2454	2454	12885	701	23,170
A absorbent tower one middle back pump	set	2.00		107,250	5%	5363	2815	2815	14780	804	26,578
Absorbing the circular pump of the second middle section of the tower	set	2.00		114,400	5%	5720	3003	3003	15766	858	28,350
Absorb tower bottom oil pump	set	2.00		143,000	5%	7150	3754	3754	19707	1073	35,437
Stable tower feeding pump	set	2.00		169,538	5%	8477	4450	4450	23364	1272	42,014
Stable gasoline pump	set	2.00		187,688	5%	9384	4927	4927	25866	1408	46,511
Stable Tower Back to Stream Pump	set	2.00		197,038	5%	9852	5172	5172	27154	1478	48,828
Poor pump of an exit of the air pressure machine	set	2.00		64,075	5%	3204	1682	1682	8830	481	15,879
Great media water circulation pump	set	2.00		191,125	5%	9556	5017	5017	26339	1433	47,363
Great media water circulation pump	set	1.00		94,875	5%	4744	2490	2490	13075	712	23,511
Mid -pressure boiler giving water pump	set	2.00		137,500	5%	6875	3609	3609	18949	1031	34,074
Alkaline pump	set	2.00		71,500	5%	3575	1877	1877	9854	536	17,719
Alkaline hydraxicated pump	set	1.00		59,538	5%	2977	1563	1563	8205	447	14,754
Alkaline washing cycle pump	set	2.00		77,275	5%	3864	2028	2028	10649	580	19,150
Removing salt water pressure pressure pump	set	1.00		111,375	5%	5569	2924	2924	15349	835	27,600
Washing circulation pump	set	2.00		113,025	5%	5651	2967	2967	15576	848	28,009
Chemical pharmacy inhalation pump	set	1.00		4,125	5%	206	108	108	568	31	1,022
High -temperature slow erosion agent injected pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044

Poor pump of an exit of the air pressure machine	set	1.00		4,125	5%	206	108	108	568	31	1,022
Sodium phosphate injection pump	set	6.00		24,750	5%	1238	650	650	3411	186	6,133
Frozen water circulation pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Alkaline pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Sulfur -containing solvent pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Recycled alkali pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Solvent oil circulation pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Solvent oil inlet pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Chemical pharmaceutical injection pump	set	2.00		8,250	5%	413	217	217	1137	62	2,044
Rich Water Washing Pump	set	2.00		63,250	5%	3163	1660	1660	8717	474	15,674
Circulating pulp pump	set	2.00		177,375	5%	8869	4656	4656	24444	1330	43,956
Liquefied gas pump	set	2.00		112,750	5%	5638	2960	2960	15538	846	27,941
1#Main wind compressor	set	1.00		4,726,563	5%	236328	124072	124072	651379	35449	1,171,301
1#Main fan supporting flue gas turbine	set	1.00		3,698,750	5%	184938	97092	97092	509734	27741	916,596
1#Main fan supporting motor	set	1.00		1,834,525	5%	91726	48156	48156	252820	13759	454,618
2#Main wind compressor	set			3,575,000	20%	715000	107250	107250	563063	26813	1,519,375
2#Main fan supporting flue gas turbines	set			2,901,250	5%	145063	76158	76158	399829	21759	718,966
Compressor of the booster unit	set			1,127,500	5%	56375	29597	29597	155384	8456	279,409
Boost unit motor	set			880,000	5%	44000	23100	23100	121275	6600	218,075
Abundant compressor	set	1.00		3,688,163	5%	184408	96814	96814	508275	27661	913,973
Turbine	set	1.00		3,351,150	5%	167558	87968	87968	461830	25134	830,457
Cold catalyst tank roof empty muffler	set	1.00		138	5%	7	4	4	19	1	34
Waste catalyst tank top empty muffler	set	1.00		138	5%	7	4	4	19	1	34
Main fan entrance muffler	set	1.00		138	5%	7	4	4	19	1	34
Main fan exit muffler	set	1.00		138	5%	7	4	4	19	1	34
Main fan exit empty muffler	set	1.00		138	5%	7	4	4	19	1	34
Division tower oil gas pipeline empty muffler	set	1.00		138	5%	7	4	4	19	1	34
Settores set off empty muffler	set	1.00		138	5%	7	4	4	19	1	34
The exit of the supercharger is empty and the muffler	set	1.00		138	5%	7	4	4	19	1	34
External heat device top empty muffler	set	1.00		138	5%	7	4	4	19	1	34

Inner pressure inner heat heating device steam empty muffler	set	1.00		138	5%	7	4	4	4	19	1	34
Low -pressure overhear steaming steam empty muffler	set	1.00		138	5%	7	4	4	4	19	1	34
Swarm wheel entrance empty muffler	set	1.00		138	5%	7	4	4	4	19	1	34
Steam turbine exit empty muffler	set	1.00		138	5%	7	4	4	4	19	1	34
External heat device produces vapor vacancies	set	1.00		138	5%	7	4	4	4	19	1	34
Circular oil slurry producers	set	1.00		138	5%	7	4	4	4	19	1	34
Yuqi overheated vapor dispeller	set	1.00		138	5%	7	4	4	4	19	1	34
Low -voltage steam aircover muffler	set	1.00		138	5%	7	4	4	4	19	1	34
Regenerative flue gas sample	set	1.00		138	5%	7	4	4	4	19	1	34
Raw material oil sampling cooling device	set	1.00		138	5%	7	4	4	4	19	1	34
Coarse gasoline sampler	set	1.00		138	5%	7	4	4	4	19	1	34
Rich sampler	set	1.00		138	5%	7	4	4	4	19	1	34
Top sampling cooler	set	1.00		138	5%	7	4	4	4	19	1	34
Division one middle oil sampling cooler	set	1.00		138	5%	7	4	4	4	19	1	34
Circular pulp sampling cooler	set	1.00		138	5%	7	4	4	4	19	1	34
Light diesel sampler	set	1.00		138	5%	7	4	4	4	19	1	34
Back to refining cooler	set	1.00		138	5%	7	4	4	4	19	1	34
Acid sampling device	set	1.00		138	5%	7	4	4	4	19	1	34
Dry sampling device	set	1.00		138	5%	7	4	4	4	19	1	34
Stabilize gasoline samplers	set	1.00		138	5%	7	4	4	4	19	1	34
Liquefied gas sampling device	set	1.00		138	5%	7	4	4	4	19	1	34
Tashane gasoline sampling cooler	set	1.00		688	5%	34	18	18	18	95	5	170
Purifying fuel gas sampling device	set	1.00		138	5%	7	4	4	4	19	1	34
After washing, liquefied gas sampling device	set	1.00		138	5%	7	4	4	4	19	1	34
Picotin fluid sampler	set	1.00		138	5%	7	4	4	4	19	1	34
Refined liquefied gas sampling device	set	1.00		138	5%	7	4	4	4	19	1	34
Liquefied petroleum filter	set	1.00		275	5%	14	7	7	7	38	2	68
Removing salt water filter	set	1.00		275	5%	14	7	7	7	38	2	68
Alkaline liquid filter	set	1.00		275	5%	14	7	7	7	38	2	68

Fireproof	set	1.00		4,813	5%	241	126	126	663	36	1,193
Slurry off solid facilities	set	1.00		1,117,188	5%	55859	29326	29326	153962	8379	276,853
Doldfish injection pry	set	1.00		7,150	5%	358	188	188	985	54	1,772
Combined Pharmaceutical Machine	set	1.00		8,250	5%	413	217	217	1137	62	2,044
Prices of passivation agent injection	set	1.00		7,150	5%	358	188	188	985	54	1,772
Steam sprayer	set	1.00		18,288	5%	914	480	480	2520	137	4,532
Ingredient oil-return refining mixture	set	1.00		550	5%	28	14	14	76	4	136
Thermostat	set	1.00		550	5%	28	14	14	76	4	136
Equipment insulation material	M3	560.00		371,360	5%	18568	9748	9748	51178	2785	92,028
Equipment anticorrosive material	ton	2.47		10,560	5%	528	277	277	1455	79	2,617
Metal structure platform ladder	ton			266,530	20%	53306	7996	7996	41978	1999	113,275
Lubricating oil filter car	set	2.00		220	5%	11	6	6	30	2	55
Electric bridge crane	set	1.00		13,200	5%	660	347	347	1819	99	3,271
Explosion -proof electric bridge crane	set	1.00		16,500	5%	825	433	433	2274	124	4,089
Explosion -proof electric gourd in supercharged machine	set	1.00		1,320	5%	66	35	35	182	10	327
Catalyst Hanging explosion -proof electric gourd	set	1.00		1,320	5%	66	35	35	182	10	327
Main fan export damping one -way valve	set	1.00		29,260	10%	2926	805	805	4224	219	8,979
Unidirectional valve in the entrance of the main wind manager	set	1.00		20,680	10%	2068	569	569	2986	155	6,346
The one -way valve	set	1.00		29,260	10%	2926	805	805	4224	219	8,979
High temperature cutting valve at the entrance of the hood	set	1.00		141,680	10%	14168	3896	3896	20455	1063	43,478
High temperature adjustment butterfly valve	set	1.00		156,420	10%	15642	4302	4302	22583	1173	48,001
Single slide valve	set	1.00		396,000	10%	39600	10890	10890	57173	2970	121,523
A period of regeneration single -motion slide valve	set	1.00		418,000	10%	41800	11495	11495	60349	3135	128,274
Regenerative flue gas double -moving slide valve	set	1.00		499,730	10%	49973	13743	13743	72149	3748	153,355
High temperature butterfly valve (balance boiler entrance)	set	1.00		101,200	10%	10120	2783	2783	14611	759	31,056

High temperature butterfly valve (remaining heat boiler bypass)	set	1.00	101,200	10%	10120	2783	2783	14611	759	31,056
Flue baffle valve (waste heat boiler exhaust)	set	1.00	50,600	10%	5060	1392	1392	7305	380	15,528
High -temperature butterfly valve (inlet entrance of residual heat boiler)	set	1.00	108,020	10%	10802	2971	2971	15595	810	33,149
Second -stage regeneration single -motion slide valve	set	1.00	418,000	10%	41800	11495	11495	60349	3135	128,274
External heat device Return to tube single -motion slide valve	set	1.00	396,000	10%	39600	10890	10890	57173	2970	121,523
Outer circulatory tube single -motion slide valve	set	1.00	275,000	10%	27500	7563	7563	39703	2063	84,391
Auxiliary Burning Room	set	1.00	111,760	5%	5588	2934	2934	15402	838	27,696
Remaining heat boiler chimney	set	1.00	1,461,020	5%	73051	38352	38352	201347	10958	362,059
Carbon steel pipeline	M	34,550.00	1,593,130	10%	2217	1164	1164	6109	332	10,986
Alloy steel pipeline	M	1,890.00	539,660	10%	53966	14841	14841	77913	4047	165,608
Stainless steel pipeline	M	1,095.00	495,220	10%	49522	13619	13619	71497	3714	151,971
valve	piec e	5,445.00	2,442,110	10%	244211	67158	67158	352580	18316	749,423
Pipeline	M	17,888.00	153,780	10%	15378	4229	4229	22202	1153	47,191
Flang	piec e	10,481.00	144,100	20%	28820	4323	4323	22696	1081	61,243
Pad	piec e	11,537.00	119,020	20%	23804	3571	3571	18746	893	50,584
bolt	pair	68,216.00	586,190	20%	117238	17586	17586	92325	4396	249,131
Hangers	ton	12.55	13,970	20%	2794	419	419	2200	105	5,937
Pipe expansion festival	piec e	19.00	555,170	10%	55517	15267	15267	80153	4164	170,368
Metal Hose	piec e	160.00	137,500	10%	13750	3781	3781	19852	1031	42,195
Safety valve	piec e	46.00	144,100	10%	14410	3963	3963	20804	1081	44,221



Spring branch suspension frame	piec e	276.00	65,780	5%	3289	1727	1727	9065	493	16,301
Pipeline insulation material	M3	850.00	563,640	5%	28182	14796	14796	77677	4227	139,677
Pipeline anticorrosive material	ton	2.88	1,210	5%	61	32	32	167	9	300
Pipeline static grounding		90.00	330	5%	17	9	9	45	2	82
Electrical distribution box	set	3.00	6,270	5%	314	165	165	864	47	1,554
Electrical operation column	piec e		112,200	5%	5610	2945	2945	15463	842	27,805
Electrical bridge	M	1,700.00	25,960	5%	1298	681	681	3578	195	6,433
Electrical cable	M	42,000.00	644,160	20%	128832	19325	19325	101455	4831	273,768
Lighting distribution box	set	9.00	18,810	20%	3762	564	564	2963	141	7,994
Lighting lamp	set	834.00	262,460	20%	52492	7874	7874	41337	1968	111,546
Lighting cable	M	15,000.00	230,010	20%	46002	6900	6900	36227	1725	97,754
Lightning protection	piec e	52.00	6,930	20%	1386	208	208	1091	52	2,945
Lightning protection	M	8,605.00	131,450	20%	26290	3944	3944	20703	986	55,866
Regulating valve	set	89.00	606,980	10%	60698	16692	16692	87633	4552	186,267
Pneumatic switch valve	set	18.00	99,000	10%	9900	2723	2723	14293	743	30,381
Switch button	piec e	4.00	220	20%	44	7	7	35	2	94
Laser detection system	set	1.00	27,500	5%	1375	722	722	3790	206	6,815
Back gas and toxic gas detector	set	28.00	46,200	5%	2310	1213	1213	6367	347	11,449
Safe fence	set	553.00	121,660	20%	24332	3650	3650	19161	912	51,706
Signal isolator	set	48.00	10,560	5%	528	277	277	1455	79	2,617
Throttling device	set	82.00	90,200	5%	4510	2368	2368	12431	677	22,353
Wedge flowmeter	set	12.00	66,000	5%	3300	1733	1733	9096	495	16,356
Specific tube flow meter	set	2.00	11,000	5%	550	289	289	1516	83	2,726
Vortex flow meter	set	3.00	3,300	5%	165	87	87	455	25	818
Electromagnetic Flowmeter	set	3.00	4,950	5%	248	130	130	682	37	1,227
Ultrasonic flow meter	set	1.00	2,200	5%	110	58	58	303	17	545
Volume flowmeter	set	3.00	39,600	5%	1980	1040	1040	5457	297	9,813
Korio's quality flow meter	set	3.00	66,000	5%	3300	1733	1733	9096	495	16,356

Multi-way signal collection inspection system	set	1.00		2,200	5%	110	58	58	303	17	545
Bimetallic thermometer	piec e	82.00		22,550	5%	1128	592	592	3108	169	5,588
Armor temperature element	piec e	122.00		20,130	5%	1007	528	528	2774	151	4,988
Temperature Transmitter	piec e	4.00		4,400	5%	220	116	116	606	33	1,090
Pressure gauge	piec e	380.00		104,500	5%	5225	2743	2743	14401	784	25,896
Pressure Transmitters	piec e	75.00		82,500	5%	4125	2166	2166	11370	619	20,445
Differential pressure transmitter	piec e	16.00		17,600	5%	880	462	462	2426	132	4,362
Meter pipeline	M	18,624.00		110,220	5%	5511	2893	2893	15190	827	27,314
Meter	piec e	7,927.00		27,280	5%	1364	716	716	3760	205	6,760
Instrumental valve	piec e	1,498.00		378,840	10%	37884	10418	10418	54695	2841	116,257
Meter bolt	pair	5,726.00		9,790	5%	490	257	257	1349	73	2,426
Instrumental profile	M	2,697.00		23,210	5%	1161	609	609	3199	174	5,752
Instrument cable bridge	M	523.00		8,030	5%	402	211	211	1107	60	1,990
Instrument cable	M	#####		103,400	5%	5170	2714	2714	14250	776	25,624
Water supply drainage pipeline	M	2,659.00		135,960	5%	6798	3569	3569	18737	1020	33,693
Water-giving valve	piec e	27.00		20,020	10%	2002	551	551	2890	150	6,144
Anti-drain, anti-corrosion insulation	ton	3.09		1,320	5%	66	35	35	182	10	327
Air Conditioning System	set	1.00		2,530	20%	506	76	76	398	19	1,075
Fresh catalyst	ton	1,200.00		6,187,500	10%	618750	170156	170156	893320	46406	1,898,789
Balance catalyst	ton	800.00		825,000	10%	82500	22688	22688	119109	6188	253,172
Slurry	ton	30.00		154,660	5%	7733	4060	4060	21314	1160	38,327
Metal passivation agent	ton	30.00		128,920	5%	6446	3384	3384	17767	967	31,948
Degrade	ton	12.00		206,250	5%	10313	5414	5414	28424	1547	51,111

CO combustion agent	ton	8.00	110,000	5%	5500	2888	2888	15159	825	27,259
Desulfurization solvent MDEA	ton	24.00	37,180	5%	1859	976	976	5124	279	9,214
Slurry dehydration system	set	1.00	894,080	5%	44704	23470	23470	123215	6706	221,564
Fire hydrant	piec e	13.00	3,630	5%	182	95	95	500	27	900
Fire cannon	piec e	13.00	6,270	5%	314	165	165	864	47	1,554
Fire hydrant	piec e	24.00	26,400	5%	1320	693	693	3638	198	6,542
Handicular dry powder fire extinguisher	set	258.00	3,190	5%	160	84	84	440	24	791
fire extinguisher	set	129.00	550	5%	28	14	14	76	4	136
Cycling dry powder fire extinguisher	set	6.00	12,540	5%	627	329	329	1728	94	3,108
eye washer	piec e	2.00	7,260	5%	363	191	191	1001	54	1,799
<b>0.8 MTPA Diesel Hydrotreating Unit</b>			0		0	0	0	0	0	-
Steel Structure	ton	497.41	589,440	20%	117888	17683	17683	92837	4421	250,512
1#hydrogen reactor	set	1.00	3,572,910	5%	178646	0	0	0	26797	205,442
2#Hydrogenation reactor	set	1.00	3,235,716	5%	161786	0	0	0	24268	186,054
Desert hydrogenation tower	set	1.00	821,700	5%	41085	0	0	0	6163	47,248
Fractional tower	set	1.00	996,138	5%	49807	0	0	0	7471	57,278
Ingredient oil buffer jar	set	1.00	603,900	5%	30195	15852	15852	83225	4529	149,654
After filtering the raw material oil buffer jar	set	1.00	627,660	5%	31383	16476	16476	86499	4707	155,542
High -pressure separation tank	set	1.00	507,870	20%	101574	15236	15236	79990	3809	215,845
Low -pressure separation tank	set	1.00	507,474	20%	101495	15224	15224	79927	3806	215,676
New hydrogen liquid can	set	1.00	187,110	20%	37422	5613	5613	29470	1403	79,522
Water injection tank	set	1.00	180,180	20%	36036	5405	5405	28378	1351	76,577
Retinant pollution tank	set	1.00	202,356	20%	40471	6071	6071	31871	1518	86,001
Showing tower on a desulfide pagoda	set	1.00	430,848	5%	21542	11310	11310	59376	3231	106,770
Division Tower Top Return to the Streaming Tibetan	set	1.00	410,652	5%	20533	10780	10780	56593	3080	101,765
Sulfide tank	set	2.00	338,580	20%	67716	10157	10157	53326	2539	143,897
Low -pressure empty can	set	1.00	384,516	20%	76903	11535	11535	60561	2884	163,419

Fuel gas division jar	set	1.00		207,900	20%	41580	6237	6237	32744	1559	88,358
Purifying compressed air can	set	1.00		136,224	20%	27245	4087	4087	21455	1022	57,895
Low -voltage steam water division	set	1.00		46,530	5%	2327	1221	1221	6412	349	11,531
Chorine tank	set	1.00		145,530	20%	29106	4366	4366	22921	1091	61,850
Taper	set	1.00		331,848	20%	66370	9955	9955	52266	2489	141,035
Tank	set	1.00		145,530	20%	29106	4366	4366	22921	1091	61,850
Reaction product-hydrogen hydrogen oil replacement II I	set	3.00		578,952	5%	28948	15197	15197	79787	4342	143,472
Reaction product-hydrogen hydrogen oil exchange heat exchanger II	set	1.00		183,150	5%	9158	4808	4808	25240	1374	45,387
Reaction product-hydrogen heat exchange	set	1.00		77,418	5%	3871	2032	2032	10669	581	19,185
Reaction product-low-divide oil heat exchanger	set	1.00		173,250	5%	8663	4548	4548	23876	1299	42,934
New hydrogen returns the cooler	set	1.00		144,936	5%	7247	3805	3805	19974	1087	35,917
Cooling after a desulco hydrogen tower top	set	2.00		77,418	5%	3871	2032	2032	10669	581	19,185
Refined diesel-steam Teta base oil exchanger	set	2.00		336,798	5%	16840	8841	8841	46415	2526	83,463
Cold device after the split tower top	set	1.00		155,034	5%	7752	4070	4070	21366	1163	38,419
Refined diesel-low-divide oil heat exchanger	set	4.00		581,526	5%	29076	15265	15265	80142	4361	144,109
Refined diesel after refined diesel	set	1.00		145,332	5%	7267	3815	3815	20029	1090	36,015
Reacting product empty cold device	set	8.00		522,126	5%	26106	13706	13706	71955	3916	129,389
The top air cold device of the desulco hydrogen tower	set	2.00		130,482	5%	6524	3425	3425	17982	979	32,335
Cold device on top of the distilled tower	set	2.00		130,482	5%	6524	3425	3425	17982	979	32,335
Refined diesel air cooler	set	4.00		260,964	5%	13048	6850	6850	35964	1957	64,670
Ingredient oil pump	set	2.00		143,748	5%	7187	3773	3773	19810	1078	35,623
Reaction pump	set	2.00		514,800	5%	25740	13514	13514	70946	3861	127,574
Pump	set	2.00		281,160	5%	14058	7380	7380	38747	2109	69,675
Retinant pollution oil pump	set	2.00		53,856	5%	2693	1414	1414	7422	404	13,346
Cold oil pump	set	2.00		445,500	5%	22275	11694	11694	61395	3341	110,400

Back flow pump of desulfide hydrogen tower	set	2.00	139,986	5%	6999	3675	3675	19292	1050	34,690
Retinning Tower Towe Pump	set	2.00	85,140	5%	4257	2235	2235	11733	639	21,099
Reward furnace feed pump	set	2.00	128,700	5%	6435	3378	3378	17736	965	31,893
Refined diesel pump	set	2.00	83,160	5%	4158	2183	2183	11460	624	20,608
Sulfide pump	set	2.00	63,756	5%	3188	1674	1674	8786	478	15,800
Lowering agent pump	set	2.00	23,760	5%	1188	624	624	3274	178	5,888
Anti -abrasion pump	set	1.00	277,200	5%	13860	7277	7277	38202	2079	68,694
Composite pump	set	2.00	110,880	5%	5544	2911	2911	15281	832	27,477
Dirty pump	set	2.00	15,840	5%	792	416	416	2183	119	3,925
Wind diaphragm pump	set	1.00	3,960	5%	198	104	104	546	30	981
New hydrogen compressor	set	2.00	9,414,306	20%	1882861	282429	282429	1482753	70607	4,001,080
Blossom	set	1.00	9,900	5%	495	260	260	1364	74	2,453
Inflow	set	1.00	9,900	5%	495	260	260	1364	74	2,453
Reacting feed heating furnace	set	1.00	1,192,158	5%	59608	31294	31294	164294	8941	295,432
Reward furnace feed furnace	set	1.00	772,992	5%	38650	20291	20291	106528	5797	191,557
Full device takes time to remove the muffler	set	1.00	1,980	5%	99	52	52	273	15	491
Heating furnace steam export muffler	set	1.00	1,980	5%	99	52	52	273	15	491
Raw oil filter	set	1.00	1,980	5%	99	52	52	273	15	491
Hydrogen filter	set	1.00	39,600	5%	1980	1040	1040	5457	297	9,813
Reacting feed heating furnace fuel air wire fireproof	set	4.00	27,720	5%	1386	728	728	3820	208	6,869
Reaction feed heating furnace Changming Light Creation Fireproof	set	2.00	13,860	5%	693	364	364	1910	104	3,435
Division tower bottom heavy boiling furnace fuel gas fireproof	set	2.00	13,860	5%	693	364	364	1910	104	3,435
Division tower bottom heavy boiling furnace Changming light wire fireproof	set	2.00	13,860	5%	693	364	364	1910	104	3,435
1#hydrogen mixed	set	1.00	29,700	5%	1485	780	780	4093	223	7,360
2#hydrogen mixed	set	1.00	29,700	5%	1485	780	780	4093	223	7,360
Empty	set	1.00	26,334	5%	1317	691	691	3629	198	6,526
Safety valve	set	25.00	134,200	10%	13420	3691	3691	19375	1007	41,183

Carbon steel pipeline	M	11,613.00	535,260	5%	26763	14051	14051	73766	4014	132,644
Stainless steel pipeline	M	439.00	193,160	5%	9658	5070	5070	26620	1449	47,867
valve	piec e	2,777.00	1,557,490	5%	77875	40884	40884	214642	11681	385,965
Pipeline	piec e	2,401.00	35,420	5%	1771	930	930	4881	266	8,778
Flang	piec e	3,838.00	52,800	20%	10560	1584	1584	8316	396	22,440
Pad	piec e	6,892.00	71,060	20%	14212	2132	2132	11192	533	30,201
bolt	pair	18,560.00	159,500	20%	31900	4785	4785	25121	1196	67,788
Spring branch suspension frame	ton	9.20	14,300	5%	715	375	375	1971	107	3,544
Safety valve	piec e	25.00	134,200	10%	13420	3691	3691	19375	1007	41,183
Energy -saving tube	ton	11.81	15,400	5%	770	404	404	2122	116	3,816
Pipe insulation	M3	260.00	178,310	5%	8916	4681	4681	24573	1337	44,187
Pipeline anticorrosion and insulation	ton	2.16	880	5%	44	23	23	121	7	218
Pipeline static grounding		26.00	1,100	5%	55	29	29	152	8	273
Electric equipment distribution box	set	6.00	12,540	5%	627	329	329	1728	94	3,108
Electric Equipment Bridge	M	576.00	8,800	5%	440	231	231	1213	66	2,181
Galvanized steel	M	5,436.00	11,990	20%	2398	360	360	1888	90	5,096
Galvanized angle steel	M	900.00	3,080	20%	616	92	92	485	23	1,309
Galvanized slot steel	M	2,845.00	9,790	20%	1958	294	294	1542	73	4,161
Electrical cable	M	1,930.00	29,590	20%	5918	888	888	4660	222	12,576
Electrical wire	M	11,585.00	3,630	20%	726	109	109	572	27	1,543
Bimetallic thermometer	piec e	240.00	495,000	5%	24750	12994	12994	68217	3713	122,667
Original of armor temperature	piec e	256.00	72,820	5%	3641	1912	1912	10036	546	18,046
Pressure gauge	piec e	448.00	110,000	5%	5500	2888	2888	15159	825	27,259
Pressure Transmitters	set	44.00	48,400	5%	2420	1271	1271	6670	363	11,994
Differential pressure transmitter	set	104.00	114,400	5%	5720	3003	3003	15766	858	28,350

Wedge flowmeter	set	21.00	115,500	5%	5775	3032	15917	866	28,622
Rotor flow meter	set	4.00	4,400	5%	220	116	606	33	1,090
Vortex flow meter	set	4.00	4,400	5%	220	116	606	33	1,090
Electromagnetic Flowmeter	set	2.00	3,300	5%	165	87	455	25	818
Mass flowmeter	set	3.00	97,900	5%	4895	2570	13492	734	24,261
Glass plate liquid position	set	12.00	1,320	5%	66	35	182	10	327
Magnetic liquid meter	set	8.00	880	5%	44	23	121	7	218
Differential pressure liquid level transmitter	set	14.00	15,400	5%	770	404	2122	116	3,816
Inner float liquid level meter	set	7.00	7,700	5%	385	202	1061	58	1,908
Magnetic telescopic liquid level instrument	set	10.00	110,000	5%	5500	2888	15159	825	27,259
Combustible and toxic gas detector	set	43.00	70,950	5%	3548	1862	9778	532	17,582
Oxidation of oxide oxygen content analyzer	piec e	6.00	132,000	5%	6600	3465	18191	990	32,711
Self -force adjustment valve	piec e	2.00	11,000	10%	1100	303	1588	83	3,376
Regulating valve	piec e	74.00	800,360	10%	80036	22010	115552	6003	245,610
Pneumatic switch valve	piec e	9.00	99,000	10%	9900	2723	14293	743	30,381
Electric gate valve	piec e	5.00	27,500	10%	2750	756	3970	206	8,439
The electromagnetic valve	set	1.00	11,000	10%	1100	303	1588	83	3,376
Throttling device	M	51.00	112,200	5%	5610	2945	15463	842	27,805
Meter pipeline	M	3,130.00	32,120	5%	1606	843	4427	241	7,960
Instrumental valve	piec e	760.00	497,530	10%	49753	13682	71831	3731	152,680
Meter	piec e	1,755.00	6,050	10%	605	166	873	45	1,857
Instrument fastener	piec e	3,776.00	6,490	10%	649	178	937	49	1,992
Meter bridge	M	21,608.00	31,900	10%	3190	877	4606	239	9,789

Instrument cable	M	78,990.00	189,750	20%	37950	5693	5693	29886	1423	80,644
Lighting distribution box	set	2.00	4,290	5%	215	113	113	591	32	1,063
Lighting lamp	set	338.00	106,370	20%	21274	3191	3191	16753	798	45,207
Lighting cable	M	10,800.00	165,660	20%	33132	4970	4970	26091	1242	70,406
Lightning protection	piec e	17.00	2,200	20%	440	66	66	347	17	935
Lightning protection	M	286.00	4,400	20%	880	132	132	693	33	1,870
fire alarm system	set	1.00	2,200	20%	440	66	66	347	17	935
Industrial TV monitoring system	set	1.00	2,200	20%	440	66	66	347	17	935
Polymor	set	1.00	2,200	5%	110	58	58	303	17	545
Water supply drainage pipeline	M	740.00	61,600	5%	3080	1617	1617	8489	462	15,265
Water -giving valve	piec e	14.00	10,340	10%	1034	284	284	1493	78	3,173
Insteivated heating and preservation of drainage	ton	0.50	330	5%	17	9	9	45	2	82
catalyst	ton	120.00	3,506,250	10%	350625	96422	96422	506215	26297	1,075,980
Erosion	ton	18.00	396,000	5%	19800	10395	10395	54574	2970	98,134
Vulcanizing agent	ton	18.00	142,560	10%	14256	3920	3920	20582	1069	43,748
Abrasion	ton	220.00	567,160	5%	28358	14888	14888	78162	4254	140,549
Fire hydrant	piec e	12.00	3,300	5%	165	87	87	455	25	818
Fire cannon	piec e	6.00	2,860	5%	143	75	75	394	21	709
Fire hydrant	piec e	7.00	7,700	5%	385	202	202	1061	58	1,908
Handicular dry powder fire extinguisher	set	72.00	1,100	5%	55	29	29	152	8	273
fire extinguisher	set	58.00	220	5%	11	6	6	30	2	55
Cycling dry powder fire extinguisher	set	2.00	4,180	5%	209	110	110	576	31	1,036
eye washer	piec e	3.00	10,890	20%	2178	327	327	1715	82	4,628
<b>0.4 MTPA Catalytic Reforming Unit</b>			0		0	0	0	0	0	-
Steel Structure	ton	1,470.96	1,750,440	20%	350088	52513	52513	275694	13128	743,937
Pre -hydrogen reactor	set	1.00	295,873	5%	14794	0	0	0	2219	17,013



Pre -added hydrogen chloride reactor	set	1.00	295,873	5%	14794	0	0	0	0	2219	17,013
Pre -hydrogen protective bed reactor	set	1.00	354,585	5%	17729	0	0	0	0	2659	20,389
First reactor	set	1.00	271,425	5%	13571	0	0	0	0	2036	15,607
Second reorganizer	set	1.00	275,275	5%	13764	7226	7226	37936	2065	2065	68,217
Third reactor	set	1.00	281,050	5%	14053	0	0	0	0	2108	16,160
Fourth reactor	set	1.00	311,850	5%	15593	0	0	0	0	2339	17,931
Phenyl hydrogen reactor	set	1.00	295,873	5%	14794	0	0	0	0	2219	17,013
Steam Tower	set	1.00	336,875	5%	16844	0	0	0	0	2527	19,370
Stone Brain Oil Division Tower	set	1.00	504,350	5%	25218	0	0	0	0	3783	29,000
Molten alkane	set	1.00	397,898	5%	19895	0	0	0	0	2984	22,879
Adsorbing tower	set	8.00	1,344,035	5%	67202	0	0	0	0	10080	77,282
Pre -hydrogen hydrogen high pressure separator	set	1.00	150,150	5%	7508	0	0	0	0	1126	8,634
Pre -hydrogen hydrogenation low - pressure separator	set	1.00	98,175	5%	4909	0	0	0	0	736	5,645
Pre -hydrogenation recycical hydrogen compressor entrance liquid tank	set	1.00	63,333	20%	12667	1900	1900	9975	475	475	26,917
Steam Tower Return can	set	1.00	63,333	5%	3167	1662	1662	8728	475	475	15,695
Shi brain oil distillation tower back flow can	set	1.00	87,395	5%	4370	2294	2294	12044	655	655	21,658
Reading product gas liquid separation tank	set	1.00	89,705	20%	17941	2691	2691	14129	673	673	38,125
Reorganized recycling hydrogen compressor entrance liquid tank	set	1.00	63,333	20%	12667	1900	1900	9975	475	475	26,917
Bettering tower backlifted tower	set	1.00	69,300	5%	3465	0	0	0	0	520	3,985
Molecular sieve dry tank	set	2.00	74,690	20%	14938	2241	2241	11764	560	560	31,743
Molecular screen regeneration gas split water can	set	1.00	48,125	20%	9625	1444	1444	7580	361	361	20,453
Reorganize a sulfur injection chlorine jar	set	1.00	34,650	20%	6930	1040	1040	5457	260	260	14,726
Reorganize two -reverse sulfur injection chlorine jar	set	1.00	34,650	20%	6930	1040	1040	5457	260	260	14,726
Reorganize three backwritten sulfur injection chlorine cans	set	1.00	34,650	20%	6930	1040	1040	5457	260	260	14,726

Reorganize four -anti -sulfur injection chlorine jar	set	1.00		34,650	20%	6930	1040	1040	5457	260	14,726
Re-re -injected water tank	set	2.00		25,988	20%	5198	780	780	4093	195	11,045
Reorganized chlorine jar	set	2.00		25,988	20%	5198	780	780	4093	195	11,045
Note slow erosion tank	set	1.00		25,988	20%	5198	780	780	4093	195	11,045
Hydrogen -producing compressor entrance liquid tank	set	1.00		53,323	20%	10665	1600	1600	8398	400	22,662
Hydrocharger export division tank	set	1.00		119,350	20%	23870	3581	3581	18798	895	50,724
Hydrogen chlorine jar	set	2.00		104,720	20%	20944	3142	3142	16493	785	44,506
Hot body tank	set	2.00		119,350	20%	23870	3581	3581	18798	895	50,724
Reorganized gasoline takes off chlorine	set	1.00		83,160	20%	16632	2495	2495	13098	624	35,343
Phenyl hydrogen hydrogen inlet buffer tank	set	1.00		98,368	20%	19674	2951	2951	15493	738	41,806
Penal hydrogen liquid separation tank	set	1.00		104,720	20%	20944	3142	3142	16493	785	44,506
Steam splitter	set	1.00		15,400	20%	3080	462	462	2426	116	6,545
Torch gas split jar	set	1.00		96,250	20%	19250	2888	2888	15159	722	40,906
Fuel gas division jar	set	1.00		44,660	20%	8932	1340	1340	7034	335	18,981
Purifying compressed air can	set	1.00		81,235	20%	16247	2437	2437	12795	609	34,525
Medium pressure nitrogen tank	set	1.00		81,235	20%	16247	2437	2437	12795	609	34,525
Low -pressure nitrogen tank	set	1.00		81,235	20%	16247	2437	2437	12795	609	34,525
Fuel gas dewarter	set	1.00		78,925	5%	3946	2072	2072	10877	592	19,559
Ingredient air buffer	set	1.00		76,615	5%	3831	2011	2011	10559	575	18,986
Tann	set	1.00		100,100	5%	5005	2628	2628	13795	751	24,806
Reverse gas buffer jar	set	1.00		111,650	5%	5583	2931	2931	15387	837	27,668
Anti -absorbing mixture	set	1.00		111,650	5%	5583	2931	2931	15387	837	27,668
Ingredient	set	1.00		23,100	5%	1155	606	606	3183	173	5,724
Pre -add hydrogen feeding heat exchanger	set	7.00		1,226,033	5%	61302	32183	32183	168963	9195	303,826
Stepota feed heat exchange heat	set	2.00		138,985	5%	6949	3648	3648	19154	1042	34,442
Brain Oil Division Tower Bottom Oil Hyser	set	1.00		79,118	5%	3956	2077	2077	10903	593	19,606
Steam Tower Heavy Boeer	set	1.00		217,525	5%	10876	5710	5710	29978	1631	53,905

Shi brain oil distillation tower heavy boiling device	set	1.00	217,525	5%	10876	5710	5710	29978	1631	53,905
Pre -hydrogen boot and stop working cooler	set	1.00	160,160	5%	8008	4204	4204	22072	1201	39,690
Steam Tower top cooler A	set	1.00	151,690	5%	7585	0	0	0	1138	8,722
Steam Tower top cooler B	set	1.00	166,513	5%	8326	0	0	0	1249	9,574
The cold device of the stones of the stone brain oil division tower	set	1.00	155,925	5%	7796	4093	4093	21488	1169	38,640
Cold device after pre -hydrogenation product	set	1.00	166,513	5%	8326	4371	4371	22948	1249	41,264
Pre -hydrogen hydrogen supplement hydrogen compressor rear cold device	set	1.00	177,100	5%	8855	4649	4649	24407	1328	43,888
Reorganized feeding heat exchange	set	1.00	327,250	5%	16363	8590	8590	45099	2454	81,097
Second -stage hydrogen heat exchanger	set	1.00	365,750	5%	18288	9601	9601	50405	2743	90,637
Durthane tower feed-tower bottom heat exchanger	set	4.00	128,205	5%	6410	3365	3365	17668	962	31,771
Dalxane tower heavy boiling device	set	1.00	217,525	5%	10876	5710	5710	29978	1631	53,905
Reorganized gasoline cooler	set	1.00	217,525	5%	10876	5710	5710	29978	1631	53,905
Molecular sieve regeneration gas cooler	set	1.00	142,643	5%	7132	3744	3744	19658	1070	35,349
Hydrocharger export water cooler	set	1.00	142,643	5%	7132	3744	3744	19658	1070	35,349
Reorganized product cooler	set	2.00	294,525	5%	14726	7731	7731	40589	2209	72,987
Thermal carrier cooler	set	1.00	132,825	5%	6641	3487	3487	18305	996	32,916
Diplocker top cooler	set	2.00	404,250	5%	20213	10612	10612	55711	3032	100,178
Phenyl hydrogen hydrogen-reactive product heat exchanger	set	2.00	246,400	5%	12320	6468	6468	33957	1848	61,061
Phenyl hydrogen hydrogen feeding start - up heater	set	1.00	109,725	5%	5486	2880	2880	15121	823	27,191
Phenyl hydrogen hydrogenation product cooler	set	1.00	132,825	5%	6641	3487	3487	18305	996	32,916
Phenyl hydrogen hydrogenura cooler	set	1.00	109,725	5%	5486	2880	2880	15121	823	27,191
Pre -added hydrogen product empty cold device	set	2.00	693,000	5%	34650	18191	18191	95504	5198	171,734

Brain oil division tower empty cold device	set	2.00		646,030	5%	32302	16958	16958	89031	4845	160,094
Reorganized product empty cold device	set	4.00		1,358,280	5%	67914	35655	35655	187188	10187	336,599
Pre -hydrogenation recycical hydrogen compressor	set	2.00		1,591,590	20%	318318	47748	47748	250675	11937	676,426
Pre -hydrogen hydrogen supplementary hydrogen compressor	set	2.00		1,703,625	20%	340725	51109	51109	268321	12777	724,041
Reorganized cycle hydrogen compressor	set	3.00		2,541,000	5%	127050	66701	66701	350182	19058	629,692
Blossom	set	1.00		15,400	5%	770	404	404	2122	116	3,816
Inflow	set	1.00		15,400	5%	770	404	404	2122	116	3,816
Anti -absorbing compressor	set	2.00		1,432,970	5%	71649	37615	37615	197481	10747	355,108
Pre -hydrogen hydrogen inlet heating furnace	set	1.00		301,576	5%	15079	7916	7916	41561	2262	74,734
First overtake	set	1.00		1,517,810	5%	75891	39843	39843	209173	11384	376,132
Second overtoch	set	1.00		1,843,055	5%	92153	48380	48380	253996	13823	456,732
Third oven	set	1.00		1,525,038	5%	76252	40032	40032	210169	11438	377,923
Fourth furnace	set	1.00		903,458	5%	45173	23716	23716	124508	6776	223,888
Molecular sieve regeneration furnace	set	1.00		252,968	5%	12648	6640	6640	34862	1897	62,689
Heating carrier furnace	set	1.00		2,976,353	5%	148818	78129	78129	410179	22323	737,577
Pre -hydrogen feast pump	set	2.00		280,280	5%	14014	7357	7357	38626	2102	69,457
Stepa back pump	set	3.00		292,600	5%	14630	7681	7681	40324	2195	72,510
Shi brain oil division tower back pump	set	2.00		194,425	5%	9721	5104	5104	26794	1458	48,181
Reorganized pump	set	4.00		438,130	5%	21907	11501	11501	60380	3286	108,574
Dentalane tower feed pump	set	2.00		508,585	5%	25429	13350	13350	70089	3814	126,034
Backing pump of the Tatanane Tower	set	2.00		202,125	5%	10106	5306	5306	27855	1516	50,089
Re -re -pump pump	set	2.00		202,125	5%	10106	5306	5306	27855	1516	50,089
Reorganized pump	set	2.00		87,588	5%	4379	2299	2299	12071	657	21,705
Heating carrier pump	set	2.00		132,825	5%	6641	3487	3487	18305	996	32,916
Pump pump	set	2.00		202,125	5%	10106	5306	5306	27855	1516	50,089
Benzene hydrogen circulating oil pump	set	2.00		164,588	5%	8229	4320	4320	22682	1234	40,787
Empty oil pump	set	1.00		3,850	5%	193	101	101	531	29	954
Note slow erosion pump	set	2.00		11,550	5%	578	303	303	1592	87	2,862

Pre -hydrogen reaction product sampling	set	1.00		193	5%	10	5	5	27	1	48
Circular hydrogen sampling	set	1.00		193	5%	10	5	5	27	1	48
Gas liquid separation tank contain sulfur sewage sample	set	1.00		193	5%	10	5	5	27	1	48
Pre -add hydrocyrone brain sampling device	set	1.00		193	5%	10	5	5	27	1	48
Supplementary hydrogen sampling device	set	1.00		193	5%	10	5	5	27	1	48
Stepa bottom oil sampling device	set	1.00		193	5%	10	5	5	27	1	48
Steam Tower Return Sample Sample	set	1.00		193	5%	10	5	5	27	1	48
Sulfur -containing fuel gas sampling device	set	1.00		193	5%	10	5	5	27	1	48
Light stone brain oil sampling device	set	1.00		193	5%	10	5	5	27	1	48
Shi brain oil division tower top gas sampler	set	1.00		193	5%	10	5	5	27	1	48
Reorganize the export sampler	set	1.00		193	5%	10	5	5	27	1	48
Reorganize the two -out export sampler	set	1.00		193	5%	10	5	5	27	1	48
Reorganize the export sampling device	set	1.00		193	5%	10	5	5	27	1	48
Reorganize the four export samplers	set	1.00		193	5%	10	5	5	27	1	48
Reorganized sampling	set	1.00		193	5%	10	5	5	27	1	48
Reorganized recycling hydrogen compressor entry sampling device	set	1.00		193	5%	10	5	5	27	1	48
Reorganized gas liquid separation tank bottom oil sampling device	set	1.00		193	5%	10	5	5	27	1	48
Dentalane Tower Top Flowing Sample Sample	set	1.00		193	5%	10	5	5	27	1	48
Dalxane Tower Top Sample Sample	set	1.00		193	5%	10	5	5	27	1	48
Modeling tower bottom oil sampling device	set	1.00		193	5%	10	5	5	27	1	48
Hydrogen sampling device after taking off	set	1.00		193	5%	10	5	5	27	1	48

Exit sampling of dehydrated chlorine tower feeding tower	set	1.00		193	5%	10	5	5	27	1	48
The sampler of the side line of the decapation tower	set	1.00		193	5%	10	5	5	27	1	48
Phenyl hydrogen -hydrogen tail gas sampling	set	1.00		193	5%	10	5	5	27	1	48
Define and light hydrocarbon sampling device	set	1.00		193	5%	10	5	5	27	1	48
Pre -added hydrogen inlet furnace main fire mouth fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
Pre -hydrogen feed furnace long light light fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
The first overthrow furnace F201A main fire mouth fuel gas pipeline fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
The second overthrow F201B main fire mouth fuel gas pipeline fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
The third furnace F201C main fire mouth fuel gas pipeline fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
The fourth furnace F201D main fire mouth fuel gas pipeline fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
Molecular screen regeneration furnace main fire mouth fuel gas pipeline fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
The main fire of the thermal carrier furnace fuel gas pipeline fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
Reorganize the four -in -one furnace Changming Lantern fuel gas fireproof	set	2.00		13,475	5%	674	354	354	1857	101	3,339
Pre -hydrogenation filter	set	2.00		13,475	5%	674	354	354	1857	101	3,339
Reorganize the muffler	set	1.00		193	5%	10	5	5	27	1	48
Reorganizer	set	1.00		25,603	5%	1280	672	672	3528	192	6,345
Explosion -proof bridge crane	set	1.00		174,598	5%	8730	4583	4583	24062	1309	43,268
Equipment insulation material	M3	280.00		278,850	5%	13943	7320	7320	38429	2091	69,103
Equipment anticorrosive material	ton	0.86		330	5%	17	9	9	45	2	82

Equipment fire prevention material	ton	0.02	110	5%	6	3	3	15	1	27
Metal structure platform ladder	ton	45.00	52,580	5%	2629	1380	1380	7246	394	13,030
Equipment	M3	52.93	193,930	5%	9697	5091	5091	26726	1454	48,058
PSA program -controlled complete set of equipment	set	1.00	3,101,560	5%	155078	81416	81416	427434	23262	768,605
Bridge crane device	set	1.00	99,770	5%	4989	2619	2619	13750	748	24,724
Safety valve	set	53.00	103,510	10%	10351	2847	2847	14944	776	31,765
Carbon steel pipeline	M	22,992.00	838,090	5%	41905	22000	22000	115499	6286	207,689
Alloy steel pipeline	M	711.00	549,670	5%	27484	14429	14429	75751	4123	136,215
Stainless steel pipeline	M	488.00	147,730	5%	7387	3878	3878	20359	1108	36,609
valve	piec e	3,408.00	822,030	10%	82203	22606	22606	118681	6165	252,260
Pipeline	piec e	5,209.00	76,890	5%	3845	2018	2018	10596	577	19,054
Flang	piec e	6,850.00	95,700	20%	19140	2871	2871	15073	718	40,673
Pad	piec e	6,892.00	71,060	20%	14212	2132	2132	11192	533	30,201
bolt	pair	18,560.00	159,500	20%	31900	4785	4785	25121	1196	67,788
Spring branch suspension frame	ton	16.50	83,710	5%	4186	2197	2197	11536	628	20,744
Pipeline insulation material	M3	102.00	101,530	5%	5077	2665	2665	13992	761	25,160
Pipeline anticorrosive material	M2	1,950.00	110	5%	6	3	3	15	1	27
Pipeline static grounding		78.00	330	5%	17	9	9	45	2	82
Electrical cable bridge	M	1,120.00	17,160	5%	858	450	450	2365	129	4,252
Electrical cable	M	53,655.00	933,130	20%	186626	27994	27994	146968	6998	396,580
Electrical distribution box	set	5.00	10,450	5%	523	274	274	1440	78	2,590
Galvanized steel	M	16,282.00	35,970	5%	1799	944	944	4957	270	8,914
Galvanized flat steel	M	5,775.00	7,590	5%	380	199	199	1046	57	1,881
Galvanized slot steel	M	9,234.00	31,900	5%	1595	837	837	4396	239	7,905
Explosion -proof lighting fixture	set	508.00	143,330	20%	28666	4300	4300	22574	1075	60,915
Electrostatic grounding line	M	900.00	13,750	20%	2750	413	413	2166	103	5,844
Static grounding	piec e	30.00	3,960	20%	792	119	119	624	30	1,683

Meter pipeline	M	17,052.00	1,232,000	5%	61600	32340	32340	169785	9240	305,305
Instrumental valve	piece	3,552.00	1,232,000	10%	123200	33880	33880	177870	9240	378,070
Meter	piece	9,757.00	39,160	10%	3916	1077	1077	5654	294	12,017
Instrument fastener	piece	23,215.00	39,930	20%	7986	1198	1198	6289	299	16,970
Instrument electrical material	piece	11,929.00	10,230	20%	2046	307	307	1611	77	4,348
Corner steel	M	7,612.00	26,290	20%	5258	789	789	4141	197	11,173
Meter bridge	M	14,490.00	221,650	5%	11083	5818	5818	30546	1662	54,928
Instrument cable	M	86,056.00	81,950	20%	16390	2459	2459	12907	615	34,829
fire alarm system	set	1.00	2,200	5%	110	58	58	303	17	545
Fire control system	set	1.00	10,010	5%	501	263	263	1380	75	2,481
Industrial TV monitoring system	set	1.00	2,200	5%	110	58	58	303	17	545
Comprehensive wiring system	set	1.00	2,200	20%	440	66	66	347	17	935
telephone system	set	1.00	440	10%	44	12	12	64	3	135
Water supply drainage pipeline	M	2,096.00	84,590	5%	4230	2220	2220	11658	634	20,962
Water -giving valve	piece	25.00	9,350	10%	935	257	257	1350	70	2,869
Insteivated heating and preservation of drainage	ton	1.00	660	5%	33	17	17	91	5	164
Heating system	set	1.00	46,310	5%	2316	1216	1216	6382	347	11,476
Pre -added hydrogen catalyst	ton	30.00	618,750	10%	61875	17016	17016	89332	4641	189,879
Reorganizure	ton	38.00	6,975,000	10%	697500	191813	191813	1007016	52313	2,140,453
Benzene hydrogen catalyst	ton	11.50	365,640	10%	36564	10055	10055	52789	2742	112,206
Chloride	ton	22.00	108,240	5%	5412	2841	2841	14917	812	26,823
Desiccant	ton	24.00	24,080	5%	1204	632	632	3319	181	5,967
Erosion	ton	10.00	85,800	5%	4290	2252	2252	11824	644	21,262
fire hydrant	set	5.00	110	5%	6	3	3	15	1	27
Rainy valve group	set	1.00	5,500	10%	550	151	151	794	41	1,688
Fire cannon	piece	4.00	4,400	5%	220	116	116	606	33	1,090



17000 NM3/H Hydrogen Production											
Unit				0		0		0	0	0	
Steel Structure	ton	350.00		414,200	20%	82840	12426	12426	65237	3107	176,035
Temperature -changing reactor	set	1.00		320,000	5%	16000	0	0	0	2400	18,400
Cobalt molybdenum degradation reactor	set	1.00		320,000	5%	16000	0	0	0	2400	18,400
Zinc oxide desulfurization reactor	set	1.00		320,000	5%	16000	0	0	0	2400	18,400
Medium temperature transformation reactor	set	1.00		320,000	5%	16000	0	0	0	2400	18,400
Acid water vapor Tower	set	1.00		120,000	5%	6000	0	0	0	900	6,900
Adsorption tower a ~ h	set	8.00		240,000	5%	12000	0	0	0	1800	13,800
Ingredient gas split jar	set	1.00		50,400	20%	10080	1512	1512	7938	378	21,420
Mid -modem first water tank	set	1.00		132,000	20%	26400	3960	3960	20790	990	56,100
Mid -modem second water tank	set	1.00		132,000	20%	26400	3960	3960	20790	990	56,100
The third water tank of the medium -changing gas	set	1.00		132,000	20%	26400	3960	3960	20790	990	56,100
Mid -medium -changing gas tank	set	1.00		132,000	20%	26400	3960	3960	20790	990	56,100
Middle pressure soda separator	set	1.00		16,000	5%	800	0	0	0	120	920
Construction separator	set	1.00		26,000	5%	1300	0	0	0	195	1,495
Oil supplement and refund buffer jar	set	1.00		128,000	20%	25600	3840	3840	20160	960	54,400
Oxygen	set	1.00		96,000	5%	4800	2520	2520	13230	720	23,790
Heating oil buffer jar	set	1.00		144,000	20%	28800	4320	4320	22680	1080	61,200
Sewage expansion	set	1.00		20,000	5%	1000	525	525	2756	150	4,956
Tann	set	1.00		30,000	5%	1500	788	788	4134	225	7,434
Anti -absorbing buffer jar	set	1.00		60,000	5%	3000	1575	1575	8269	450	14,869
Anti -absorbing mixture	set	1.00		60,000	5%	3000	1575	1575	8269	450	14,869
Oxygen	set	1.00		240,000	5%	12000	6300	6300	33075	1800	59,475
Converter steam generator	set	1.00		460,000	5%	23000	12075	12075	63394	3450	113,994
Medium -changing gas cooler	set	1.00		120,000	5%	6000	3150	3150	16538	900	29,738
Boiler Giving Water Second Heatinger	set	1.00		240,000	5%	12000	6300	6300	33075	1800	59,475
Boiler the first heater of the boiler	set	1.00		340,000	5%	17000	8925	8925	46856	2550	84,256
Qi coolingler of compressor	set	1.00		26,000	20%	5200	780	780	4095	195	11,050
Cooling	set	1.00		200,000	5%	10000	5250	5250	27563	1500	49,563
Accident cooler	set	1.00		12,000	5%	600	315	315	1654	90	2,974

Removing salt water heater	set	1.00	180,000	5%	9000	4725	4725	24806	1350	44,606
Boiler Giving Water Third Heatinger	set	1.00	240,000	5%	12000	6300	6300	33075	1800	59,475
Raw gas cooler	set	1.00	24,000	5%	1200	630	630	3308	180	5,948
Medium -changing air -cooled device	set	1.00	400,000	5%	20000	10500	10500	55125	3000	99,125
Raw material preheat furnace	set	1.00	640,000	5%	32000	16800	16800	88200	4800	158,600
Hydrogen -making conversion furnace	set	1.00	5,480,000	5%	274000	143850	143850	755213	41100	1,358,013
Thermal oil circulation pump	set	2.00	80,000	5%	4000	2100	2100	11025	600	19,825
Acid water vapor tower bottom pump	set	2.00	60,000	5%	3000	1575	1575	8269	450	14,869
Mid -pressure boiler giving water pump	set	2.00	144,000	5%	7200	3780	3780	19845	1080	35,685
Pump	set	1.00	16,000	5%	800	420	420	2205	120	3,965
Raw gas gas compression unit	set	2.00	800,000	5%	40000	21000	21000	110250	6000	198,250
Conversion furnace centrifugal drum fan	set	2.00	24,000	5%	1200	630	630	3308	180	5,948
Convert furnace centrifugal fans	set	2.00	48,000	5%	2400	1260	1260	6615	360	11,895
chimney	set	1.00	640,000	5%	32000	16800	16800	88200	4800	158,600
Phosphoric acid and drug device	set	1.00	20,000	5%	1000	525	525	2756	150	4,956
Converter catalyst	ton	31.00	781,500	10%	78150	21491	21491	112829	5861	239,823
Cobalt molybdenum catalyst	ton	9.20	200,000	10%	20000	5500	5500	28875	1500	61,375
Zinc oxide desulfide agent	ton	24.00	112,500	10%	11250	3094	3094	16242	844	34,523
Medium catalyst	ton	13.60	140,500	10%	14050	3864	3864	20285	1054	43,116
Adsorbent	ton	21.00	52,560	10%	5256	1445	1445	7588	394	16,129
Adsorbent	ton	23.00	44,710	10%	4471	1230	1230	6455	335	13,720
Adsorbent	ton	72.00	298,900	10%	29890	8220	8220	43154	2242	91,725
Adsorbent	ton	63.30	178,400	10%	17840	4906	4906	25757	1338	54,747
Adsorbent	ton	13.80	39,000	10%	3900	1073	1073	5631	293	11,968
Pressure Transmitters	set	21.00	31,500	5%	1575	827	827	4341	236	7,806
Temperature Transmitter	set	28.00	42,000	5%	2100	1103	1103	5788	315	10,408
Differential pressure transmitter	set	11.00	16,500	5%	825	433	433	2274	124	4,089
Local liquid	set	6.00	3,450	5%	173	91	91	475	26	855
Pore	set	4.00	3,000	5%	150	79	79	413	23	743
Regulating valve	set	15.00	180,000	10%	18000	4950	4950	25988	1350	55,238
Combustible and toxic gas detector	set	7.00	15,750	5%	788	413	413	2171	118	3,903
Electrical cabinet	set	3.00	7,500	5%	375	197	197	1034	56	1,859
Explosion -proof operation column	set	8.00	1,800	5%	90	47	47	248	14	446

Lighting box and lamps	set	1.00		3,000	20%	600	90	90	473	23	1,275
Offline chromatography	set	1.00		37,500	5%	1875	984	984	5168	281	9,293
Flue gas residual oxygen	set	1.00		48,000	5%	2400	1260	1260	6615	360	11,895
thermometer	piec e	33.00		1,200	5%	60	32	32	165	9	297
Original of armor temperature	piec e	89.00		20,100	5%	1005	528	528	2770	151	4,981
Carbon steel pipeline	M	6,431.00		634,500	5%	31725	16656	16656	87442	4759	157,237
valve	piec e	1,248.00		14,700	10%	1470	404	404	2122	110	4,511
Pipeline	piec e	2,540.00		29,700	5%	1485	780	780	4093	223	7,360
Flang	piec e	1,934.00		36,300	20%	7260	1089	1089	5717	272	15,428
Pad	piec e	1,882.00		26,400	20%	5280	792	792	4158	198	11,220
bolt	pair	7,234.00		84,750	20%	16950	2543	2543	13348	636	36,019
Spring branch suspension frame	piec e	71.00		8,550	5%	428	224	224	1178	64	2,119
Insulation materials	M3	162.00		219,750	20%	43950	6593	6593	34611	1648	93,394
Anticorrosive material	ton	2.20		1,350	20%	270	41	41	213	10	574
Explosion -proof repair power box	set	2.00		4,200	20%	840	126	126	662	32	1,785
Cable tray	M	366.00		7,650	20%	1530	230	230	1205	57	3,251
Explosion -proof operation column	set	37.00		8,400	20%	1680	252	252	1323	63	3,570
power cable	M	8,945.00		187,050	20%	37410	5612	5612	29460	1403	79,496
Galvanized steel	M	1,977.00		6,600	5%	330	173	173	910	50	1,636
Galvanized angle steel	M	1,700.00		3,600	5%	180	95	95	496	27	892
fire alarm system	set	1.00		3,000	5%	150	79	79	413	23	743
Industrial TV monitoring system	set	1.00		3,000	5%	150	79	79	413	23	743
Water supply drainage pipeline	M	851.00		3,600	5%	180	95	95	496	27	892
Water -giving valve	piec e	8.00		1,950	10%	195	54	54	282	15	598

0.4 MTPA Gasoline Hydrotreating											
Unit											
Steel Structure	ton	851.00	1,004,000	20%	200800	30120	30120	158130	7530	0	426,700
Selective hydrogenation reactor	set	1.00	1,053,000	5%	52650	0	0	0	7898	0	60,548
Hydrogen Desert First Reactor	set	1.00	912,000	5%	45600	0	0	0	6840	0	52,440
Hydrogen dehydration second reactor	set	1.00	525,000	5%	26250	0	0	0	3938	0	30,188
Stable tower	set	1.00	474,000	5%	23700	0	0	0	3555	0	27,255
Pre -division tower	set	1.00	768,000	5%	38400	0	0	0	5760	0	44,160
Circulating hydrogen sulfur tower	set	1.00	324,000	5%	16200	0	0	0	2430	0	18,630
Steam Tower	set	1.00	369,000	5%	18450	0	0	0	2768	0	21,218
Ingredient oil buffer jar	set	1.00	348,000	20%	69600	10440	10440	54810	2610	0	147,900
Stabilize tower top backbone can	set	1.00	105,000	20%	21000	3150	3150	16538	788	0	44,625
Better of the pre -division tower back	set	1.00	102,000	5%	5100	2678	2678	14057	765	0	25,277
Splitter	set	1.00	201,000	5%	10050	5276	5276	27700	1508	0	49,810
Round hydrogen desulfurization tower entrance liquid tank	set	1.00	93,000	20%	18600	2790	2790	14648	698	0	39,525
Round hydrogen compressor entrance divide can	set	1.00	93,000	20%	18600	2790	2790	14648	698	0	39,525
Stream Tower Top Back Stream Tibetan Tank	set	1.00	96,000	5%	4800	2520	2520	13230	720	0	23,790
Sulfide tank	set	1.00	63,000	20%	12600	1890	1890	9923	473	0	26,775
Empty jar	set	1.00	108,000	20%	21600	3240	3240	17010	810	0	45,900
Mid -pressing steam waters	set	1.00	123,000	20%	24600	3690	3690	19373	923	0	52,275
Low -voltage steam water division	set	1.00	30,000	5%	1500	788	788	4134	225	0	7,434
Mid -pressing condensed water flash steaming can	set	1.00	36,000	5%	1800	945	945	4961	270	0	8,921
Purifying compressed air can	set	1.00	75,000	5%	3750	1969	1969	10336	563	0	18,586
Fuel gas division jar	set	1.00	141,000	5%	7050	3701	3701	19432	1058	0	34,942
Selective hydrogenation feed/pre -distilled tower bottom oil shift heat exchanger	set	1.00	135,000	20%	27000	4050	4050	21263	1013	0	57,375
Selective hydrogenation feed/product heat exchanger	set	2.00	112,200	5%	5610	2945	2945	15463	842	0	27,805
	set		261,000	5%	13050	6851	6851	35969	1958	0	64,679

Selective hydrogen feed feeding preheat	set	1.00		168,000	5%	8400	4410	4410	23153	1260	41,633
Stable Tower Colder	set	1.00		162,000	5%	8100	4253	4253	22326	1215	40,146
Stabilized tower at the top of the tail of the tail	set	1.00		153,000	5%	7650	4016	4016	21085	1148	37,915
Stable Tower bottom heavy boiling device	set	1.00		267,000	5%	13350	7009	7009	36796	2003	66,166
Cold device at the top of the pre -division tower	set	1.00		138,000	5%	6900	3623	3623	19018	1035	34,198
Pre -distilled tower bottom heavy boiling device	set	1.00		107,100	5%	5355	2811	2811	14760	803	26,541
Hydrogen -de -sulfur feeding/product heat exchanger (1)	set	4.00		375,000	5%	18750	9844	9844	51680	2813	92,930
Hydrogen -de -sulfur feeding/product heat exchanger (2)	set	1.00		138,000	5%	6900	3623	3623	19018	1035	34,198
Hydrogen -de -sulfur reaction product after the cold device	set	1.00		129,000	5%	6450	3386	3386	17778	968	31,968
Circle hydrogen water cooler	set	1.00		144,000	5%	7200	3780	3780	19845	1080	35,685
Steam pagoda feed/tower bottom oil heat exchanger	set	2.00		228,000	5%	11400	5985	5985	31421	1710	56,501
Stepota Tower Colder	set	1.00		122,700	5%	6135	0	0	0	920	7,055
Steaming Tower bottom heavy boiling device	set	1.00		284,400	5%	14220	7466	7466	39194	2133	70,478
Heavy gasoline product after cold device	set	1.00		150,900	5%	7545	3961	3961	20796	1132	37,395
Stabilized tower top empty cold device	set	2.00		448,500	5%	22425	11773	11773	61809	3364	111,144
Pre -distilled tower top empty cold device	set	4.00		1,279,500	5%	63975	33587	33587	176331	9596	317,076
Hydrogen -de -sulfur reaction product empty cold device	set	4.00		1,097,700	5%	54885	28815	28815	151277	8233	272,024
Steam Tower top empty cold device	set	2.00		584,100	5%	29205	15333	15333	80496	4381	144,747
Heavy gasoline product empty cold device	set	2.00		527,700	5%	26385	13852	13852	72724	3958	130,771
Hydrogen -de -sulfur reaction product heating furnace	set	1.00		1,865,400	5%	93270	48967	48967	257075	13991	462,269

Selective hydrogen reaction pump	set	2.00	675,000	5%	33750	17719	17719	93023	5063	167,273
Stable Tower Back to Stream Pump	set	2.00	177,000	5%	8850	4646	4646	24393	1328	43,863
Stable tower bottom pump	set	2.00	366,300	5%	18315	9615	9615	50481	2747	90,774
Back flow pump in the pre -division tower	set	2.00	204,000	5%	10200	5355	5355	28114	1530	50,554
Hydrogen deoxyrum reaction pump	set	2.00	567,000	5%	28350	14884	14884	78140	4253	140,510
Cold oil pump	set	2.00	135,000	5%	6750	3544	3544	18605	1013	33,455
Steam Tower Top Back Pump	set	2.00	156,000	5%	7800	4095	4095	21499	1170	38,659
Heavy gasoline product pump	set	2.00	399,900	5%	19995	10497	10497	55111	2999	99,100
Steam Tower top acid pump	set	2.00	144,000	5%	7200	3780	3780	19845	1080	35,685
Composite pump	set	2.00	84,000	5%	4200	2205	2205	11576	630	20,816
Sulfide pump	set	2.00	399,900	5%	19995	10497	10497	55111	2999	99,100
Dirty pump	set	1.00	126,000	5%	6300	3308	3308	17364	945	31,224
Circulating hydrogen compressor	set	2.00	4,284,000	20%	856800	128520	128520	674730	32130	1,820,700
Empty muffler	set	1.00	3,000	5%	150	79	79	413	23	743
Hydrogen -de -sulfur reaction product heating furnace main fire mouth fireproof	set	2.00	9,000	5%	450	236	236	1240	68	2,230
Hydrogen -de -sulfur reaction product heating furnace long light fireproof	set	2.00	9,000	5%	450	236	236	1240	68	2,230
New hydrogen sampler	set	1.00	3,000	5%	150	79	79	413	23	743
Catalytic gasoline sampler	set	1.00	3,000	5%	150	79	79	413	23	743
Selective hydrogenation product sampling	set	1.00	3,000	5%	150	79	79	413	23	743
Stabilizing Tower Towel Tail Qi Sample	set	1.00	3,000	5%	150	0	0	0	23	173
Light -Chinese gasoline product sampling device	set	1.00	3,000	5%	150	79	79	413	23	743
Pre -distilled tower bottom oil sampling device	set	1.00	3,000	5%	150	79	79	413	23	743
Acid sampling device	set	1.00	3,000	5%	150	79	79	413	23	743
Circular hydrogen desulfurization tower entrance circulating hydrogen sampling	set	1.00	3,000	5%	150	79	79	413	23	743
Poor amine liquid sampling device	set	1.00	3,000	5%	150	79	79	413	23	743
Picotin fluid sampler	set	1.00	3,000	5%	150	79	79	413	23	743

Circle hydrogen compressor entrance sampling	set	1.00		3,000	5%	150	79	79	413	23	743
Steaming Tower top not to condense sampler	set	1.00		3,000	5%	150	79	79	413	23	743
Steam Tower top acid sampling device	set	1.00		3,000	5%	150	79	79	413	23	743
1#steam temperature decompression degrader	set	1.00		12,000	5%	600	315	315	1654	90	2,974
2#steam temperature decompression degrader	set	1.00		12,000	5%	600	315	315	1654	90	2,974
Starting the vacuum	set	1.00		6,000	5%	300	158	158	827	45	1,487
Raw oil anti-rinse filter	set	1.00		6,000	5%	300	158	158	827	45	1,487
Equipment insulation material	M3	168.00		152,100	5%	7605	3993	3993	20961	1141	37,692
Equipment anticorrosive material	ton	3.71		28,800	5%	1440	756	756	3969	216	7,137
Metal structure platform ladder	ton	63.40		84,100	20%	16820	2523	2523	13246	631	35,743
Carbon steel pipeline	M	16,351.00		685,500	5%	34275	17994	17994	94470	5141	169,875
Stainless steel pipeline	M	510.00		209,600	5%	10480	5502	5502	28886	1572	51,942
Alloy steel pipeline	M	757.00		196,400	10%	19640	5401	5401	28355	1473	60,270
valve	piec e	2,068.00		1,058,000	10%	105800	29095	29095	152749	7935	324,674
Pipeline	piec e	1,541.00		12,700	5%	635	333	333	1750	95	3,147
Flang	piec e	3,047.00		38,100	20%	7620	1143	1143	6001	286	16,193
Pad	piec e	4,324.00		40,500	20%	8100	1215	1215	6379	304	17,213
bolt	pair	12,188.00		60,900	20%	12180	1827	1827	9592	457	25,883
Spring branch suspension frame	ton	25.00		27,300	5%	1365	717	717	3762	205	6,765
Safety valve	piec e	36.00		90,700	10%	9070	2494	2494	13095	680	27,834
Energy-saving tube	ton	11.81		14,000	20%	2800	420	420	2205	105	5,950
Pipe insulation	M3	200.00		120,600	20%	24120	3618	3618	18995	905	51,255
Pipeline anticorrosion and insulation	ton	2.16		800	20%	160	24	24	126	6	340
Pipeline static grounding		13.00		100	20%	20	3	3	16	1	43

Electric equipment distribution box	set	2.00	3,800	20%	760	114	114	599	29	1,615
Electric Equipment Bridge	M	260.00	3,600	20%	720	108	108	567	27	1,530
Electrical cable	M	23,392.00	326,200	20%	65240	9786	9786	51377	2447	138,635
Bimetallic thermometer	piec e	120.00	30,000	5%	1500	788	788	4134	225	7,434
Original of armor temperature	piec e	128.00	19,200	5%	960	504	504	2646	144	4,758
Pressure gauge	piec e	224.00	50,000	5%	2500	1313	1313	6891	375	12,391
Pressure Transmitters	set	44.00	44,000	5%	2200	1155	1155	6064	330	10,904
Differential pressure transmitter	set	104.00	104,000	5%	5200	2730	2730	14333	780	25,773
Wedge flowmeter	set	21.00	105,000	5%	5250	2756	2756	14470	788	26,020
Rotor flow meter	set	4.00	4,000	5%	200	105	105	551	30	991
Vortex flow meter	set	4.00	4,000	5%	200	105	105	551	30	991
Electromagnetic Flowmeter	set	2.00	3,000	5%	150	79	79	413	23	743
Mass flowmeter	set	12.00	60,000	5%	3000	1575	1575	8269	450	14,869
Glass plate liquid position	set	18.00	1,800	5%	90	47	47	248	14	446
Magnetic liquid meter	set	8.00	800	5%	40	21	21	110	6	198
Differential pressure liquid level transmitter	set	14.00	14,000	5%	700	368	368	1929	105	3,469
Inner float liquid level meter	set	7.00	7,000	5%	350	184	184	965	53	1,735
Magnetic telescopic liquid level instrument	set	10.00	50,000	5%	2500	1313	1313	6891	375	12,391
Combustible and toxic gas detector	set	43.00	64,500	5%	3225	1693	1693	8889	484	15,984
Oxidation of oxide oxygen content analyzer	piec e	4.00	60,000	5%	3000	1575	1575	8269	450	14,869
Self-force adjustment valve	piec e	2.00	10,000	10%	1000	275	275	1444	75	3,069
Regulating valve	piec e	74.00	458,800	10%	45880	12617	12617	66239	3441	140,794
Pneumatic switch valve	piec e	9.00	45,000	10%	4500	1238	1238	6497	338	13,809



Electric gate valve	piec e	5.00	25,000	10%	2500	688	688	3609	188	7,672
The electromagnetic valve	piec e	1.00	5,000	10%	500	138	138	722	38	1,534
Throttling device	set	51.00	51,000	5%	2550	1339	1339	7028	383	12,638
Meter pipeline	M	10,198.00	58,700	5%	2935	1541	1541	8090	440	14,547
Instrumental valve	piec e	1,069.00	245,800	10%	24580	6760	6760	35487	1844	75,430
Meter bridge	M	21,608.00	29,000	5%	1450	761	761	3997	218	7,187
Instrument cable	M	8,545.00	18,700	20%	3740	561	561	2945	140	7,948
Lighting distribution box	set	2.00	3,900	20%	780	117	117	614	29	1,658
Lighting lamp	set	279.00	79,800	20%	15960	2394	2394	12569	599	33,915
Lighting cable	M	10,800.00	150,600	20%	30120	4518	4518	23720	1130	64,005
Lightning protection	piec e	17.00	2,000	20%	400	60	60	315	15	850
Lightning protection	M	286.00	4,000	20%	800	120	120	630	30	1,700
fire alarm system	set	1.00	105,000	5%	5250	2756	2756	14470	788	26,020
Water supply drainage pipeline	M	840.00	39,000	5%	1950	1024	1024	5375	293	9,665
Water -giving valve	piec e	14.00	9,400	10%	940	259	259	1357	71	2,885
Insteivated heating and preservation of drainage	ton	0.50	300	5%	15	8	8	41	2	74
catalyst	ton	30.00	860,000	10%	86000	23650	23650	124163	6450	263,913
Erosion	ton	8.00	140,000	5%	7000	3675	3675	19294	1050	34,694
Vulcanizing agent	ton	14.00	59,000	5%	2950	1549	1549	8131	443	14,621
Gasoline -alkali washing fiber membrane contactor	set	3.00	148,000	5%	7400	3885	3885	20396	1110	36,676
Gasoline -alkali washing catalyst	ton	0.28	15,400	10%	1540	424	424	2223	116	4,726
Fire hydrant	piec e	9.00	2,800	5%	140	74	74	386	21	694
Fire cannon	piec e	9.00	4,100	5%	205	108	108	565	31	1,016

Fire hydrant	piec e	18.00	16,000	5%	800	420	420	2205	120	3,965
Handicualr dry powder fire extinguisher	set	70.00	1,200	5%	60	32	32	165	9	297
fire extinguisher	set	40.00	200	5%	10	5	5	28	2	50
Cycling dry powder fire extinguisher	set	3.00	5,700	5%	285	150	150	786	43	1,413
eye washer	piec e	3.00	9,700	20%	1940	291	291	1528	73	4,123
<b>0.15 MTPA Propylene Propane Splitter Unit</b>			0		0	0	0	0	0	-
Steel Structure	ton	490.00	581,650	20%	116330	17450	17450	91610	4362	247,201
Dioxane tower	set	1.00	114,760	5%	5738	0	0	0	861	6,599
Ethylene tower	set	1.00	70,300	5%	3515	0	0	0	527	4,042
Essene tower A	set	1.00	145,920	5%	7296	0	0	0	1094	8,390
Essene tower B	set	1.00	150,860	5%	7543	0	0	0	1131	8,674
Mooth tower inlet tower	set	1.00	46,740	5%	2337	0	0	0	351	2,688
Betsenal tower back flow can	set	1.00	40,280	5%	2014	1057	1057	5551	302	9,982
Taste Tower Return Back	set	1.00	37,240	5%	1862	978	978	5132	279	9,229
Essence Poane Tower Return Back	set	1.00	59,660	5%	2983	1566	1566	8222	447	14,784
Raw material preheat	set	1.00	17,860	5%	893	469	469	2461	134	4,426
Decarbonate tower heavy boiling device	set	1.00	28,120	5%	1406	738	738	3875	211	6,968
Decarbonate tower heavy boiling device	set	1.00	27,360	5%	1368	718	718	3771	205	6,780
Trippacer tower top condenser	set	2.00	35,340	5%	1767	928	928	4870	265	8,758
Tasher Tower Relief Boiler	set	1.00	28,120	5%	1406	738	738	3875	211	6,968
Telletide Tower top condenser	set	2.00	36,100	5%	1805	948	948	4975	271	8,946
Essence Crylene Tower Heavy Boeer	set	2.00	58,520	5%	2926	1536	1536	8065	439	14,502
Essence Correte Tower Concreteer	set	8.00	123,880	5%	6194	3252	3252	17072	929	30,699
Propylene cooler	set	2.00	32,680	5%	1634	858	858	4504	245	8,099
Essence	set	1.00	13,300	5%	665	349	349	1833	100	3,296
Ingredients-Carbon Four Character	set	2.00	30,020	5%	1501	788	788	4137	225	7,439
Carbon four distillation cooler	set	1.00	15,960	5%	798	419	419	2199	120	3,955
Poane tower feed pump	set	2.00	37,240	5%	1862	978	978	5132	279	9,229
Betsene tower back pump	set	2.00	21,280	5%	1064	559	559	2933	160	5,273
Feed pump	set	2.00	36,480	5%	1824	958	958	5027	274	9,040

Tasher Tower Return Pump	set	2.00	18,240	5%	912	479	479	2514	137	4,520
Pig in the essence propopyne tower	set	2.00	17,100	5%	855	449	449	2357	128	4,238
Essence Poane Tower Returgical Pump	set	2.00	14,440	5%	722	379	379	1990	108	3,578
Carbon steel pipeline	M	12,685.00	221,300	5%	11065	5809	5809	30498	1660	54,841
Alloy steel pipeline	M	438.00	59,550	5%	2978	1563	1563	8207	447	14,757
Stainless steel pipeline	M	5,512.00	242,000	5%	12100	6353	6353	33351	1815	59,971
Craft valve	piec e	1,759.00	307,950	10%	30795	8469	8469	44460	2310	94,502
Pipeline	piec e	6,602.00	51,350	5%	2568	1348	1348	7077	385	12,725
Pad	piec e	3,822.00	35,850	20%	7170	1076	1076	5646	269	15,236
Flang	piec e	3,711.00	46,400	20%	9280	1392	1392	7308	348	19,720
bolt	set	20,564.00	160,150	20%	32030	4805	4805	25224	1201	68,064
Safety valve	piec e	27.00	61,100	10%	6110	1680	1680	8821	458	18,750
Anticorrosive material	ton	9.50	4,500	20%	900	135	135	709	34	1,913
Insulation materials	M3	475.00	37,200	20%	7440	1116	1116	5859	279	15,810
Fireproof Materials	ton	19.23	57,700	5%	2885	1515	1515	7952	433	14,299
Pipeline ground	M	100.00	800	5%	40	21	21	110	6	198
Electrical cable	M	14,872.00	206,600	20%	41320	6198	6198	32540	1550	87,805
Cable tray	ton	14.50	13,700	20%	2740	411	411	2158	103	5,823
Lighting lamp	set	187.00	56,800	20%	11360	1704	1704	8946	426	24,140
Lightning -proof copper connection	M	685.00	9,500	20%	1900	285	285	1496	71	4,038
Galvanized flat steel connecting ground wire	M	3,250.00	4,100	20%	820	123	123	646	31	1,743
Grounding	piec e	27.00	1,600	5%	80	42	42	221	12	397
Bimetallic thermometer	piec e	72.00	3,600	5%	180	95	95	496	27	892
Armor temperature component single support	piec e	94.00	7,050	5%	353	185	185	972	53	1,747

Pretending temperature element	piec e	14.00	1,050	5%	53	28	28	145	8	260
Pressure gauge	piec e	137.00	1,700	5%	85	45	45	234	13	421
Pressure Transmitters	set	60.00	30,000	5%	1500	788	788	4134	225	7,434
Differential pressure transmitter	set	41.00	20,500	5%	1025	538	538	2825	154	5,080
Throttling device	set	39.00	19,500	5%	975	512	512	2687	146	4,832
Wedge flowmeter	set	12.00	60,000	5%	3000	1575	1575	8269	450	14,869
Rotor flow meter	set	1.00	1,750	5%	88	46	46	241	13	434
Vortex flow meter	set	7.00	3,500	5%	175	92	92	482	26	867
Electromagnetic Flowmeter	set	2.00	1,500	5%	75	39	39	207	11	372
Volume flowmeter	set	4.00	24,000	5%	1200	630	630	3308	180	5,948
Korio's quality flow meter	set	3.00	30,000	5%	1500	788	788	4134	225	7,434
Glass plate liquid position	set	11.00	2,000	5%	100	53	53	276	15	496
Differential pressure liquid level transmitter	set	11.00	5,500	5%	275	144	144	758	41	1,363
Floch liquid level meter	set	2.00	3,000	5%	150	79	79	413	23	743
Floating ball liquid level meter	set	12.00	6,000	5%	300	158	158	827	45	1,487
Back gas and toxic gas detector	set	40.00	30,000	5%	1500	788	788	4134	225	7,434
Regulating valve	piec e	38.00	118,150	10%	11815	3249	3249	17058	886	36,257
Pneumatic switch valve	piec e	5.00	12,500	10%	1250	344	344	1805	94	3,836
Self-force adjustment valve	piec e	2.00	5,000	10%	500	138	138	722	38	1,534
Meter pipeline	M	3,801.00	21,000	10%	2100	578	578	3032	158	6,444
Instrumental valve	piec e	374.00	43,000	10%	4300	1183	1183	6208	323	13,196
Instrument cable	M	50,782.00	43,800	20%	8760	1314	1314	6899	329	18,615
Water supply drainage pipeline	M	522.00	13,350	5%	668	350	350	1840	100	3,308
Water-giving valve	piec e	10.00	3,000	10%	300	83	83	433	23	921
Fire Protection and Fire Cannon	set	21.00	4,900	5%	245	129	129	675	37	1,214

Fireproof	set	106.00		1,200	5%	60	32	32	165	9	297
eye washer	set	5.00		8,400	20%	1680	252	252	1323	63	3,570
<b>0.2 MTPA Isomerization Unit</b>											
Steel Structure	ton	102.00		121,000	20%	24200	3630	3630	19058	908	51,425
reactor	set	3.00		1,510,000	5%	75500	0	0	0	11325	86,825
Absorbing tower	set	1.00		780,000	5%	39000	0	0	0	5850	44,850
Solving tower	set	1.00		660,000	5%	33000	0	0	0	4950	37,950
Stable tower	set	1.00		835,000	5%	41750	0	0	0	6263	48,013
Stone brain oil buffer jar	set	1.00		175,000	20%	35000	5250	5250	27563	1313	74,375
C4 buffer tank after ether	set	1.00		180,000	20%	36000	5400	5400	28350	1350	76,500
Reacting product gas liquid separation tank	set	1.00		255,000	20%	51000	7650	7650	40163	1913	108,375
Stabilize tower top backbone can	set	1.00		210,000	20%	42000	6300	6300	33075	1575	89,250
Regenerative cycle gas division can	set	1.00		115,000	5%	5750	3019	3019	15848	863	28,498
Low -voltage steam water division	set	1.00		125,000	5%	6250	3281	3281	17227	938	30,977
Fuel gas division jar	set	1.00		255,000	20%	51000	7650	7650	40163	1913	108,375
Empty jar	set	1.00		110,000	20%	22000	3300	3300	17325	825	46,750
Raw material-reaction product heat exchanger	set	1.00		145,000	5%	7250	3806	3806	19983	1088	35,933
Raw material-reaction product heat exchanger	set	1.00		135,000	5%	6750	3544	3544	18605	1013	33,455
Reaction product water cooler	set	2.00		305,000	5%	15250	8006	8006	42033	2288	75,583
A absorbent water cooler in the middle of the tower	set	2.00		325,000	5%	16250	8531	8531	44789	2438	80,539
Stabilize aromatherapy-Refusing Tower feed and replacement hotter	set	1.00		145,000	5%	7250	3806	3806	19983	1088	35,933
Remove the tower and the boiling device	set	1.00		135,000	5%	6750	3544	3544	18605	1013	33,455
Stable tower inlet and out of material heat exchanges	set	1.00		170,000	5%	8500	4463	4463	23428	1275	42,128
Stable Tower top water cooler	set	2.00		335,000	5%	16750	8794	8794	46167	2513	83,017
Stable tower and boiling device	set	1.00		170,000	5%	8500	4463	4463	23428	1275	42,128
Stabilize aromatic hydrocarbons water cooler	set	2.00		255,000	5%	12750	6694	6694	35142	1913	63,192

Regenerative flue gas heat exchanger	set	2.00	245,000	5%	12250	6431	6431	33764	1838	60,714
Regenerative flue gas water cooler	set	1.00	125,000	5%	6250	3281	3281	17227	938	30,977
Reacting product empty cold device	set	2.00	270,000	5%	13500	7088	7088	37209	2025	66,909
Stabilize aromatics empty cold device	set	2.00	280,000	5%	14000	7350	7350	38588	2100	69,388
Stabilized tower top empty cold device	set	6.00	770,000	5%	38500	20213	20213	106116	5775	190,816
Regenerate air -cooled device	set	2.00	285,000	5%	14250	7481	7481	39277	2138	70,627
Reaction heating furnace	set	1.00	675,000	5%	33750	17719	17719	93023	5063	167,273
Regeneration heating furnace	set	1.00	710,000	5%	35500	18638	18638	97847	5325	175,947
Stone brain oil inlet pump	set	2.00	180,000	5%	9000	4725	4725	24806	1350	44,606
C4 feed pump	set	2.00	160,000	5%	8000	4200	4200	22050	1200	39,650
Removal pump	set	2.00	165,000	5%	8250	4331	4331	22739	1238	40,889
Remove the circular pump in the middle of the tower	set	2.00	180,000	5%	9000	4725	4725	24806	1350	44,606
Absorb tower bottom pump	set	2.00	175,000	5%	8750	4594	4594	24117	1313	43,367
Unitic tower bottom pump	set	2.00	190,000	5%	9500	4988	4988	26184	1425	47,084
Stable Tower Back to Stream Pump	set	2.00	170,000	5%	8500	4463	4463	23428	1275	42,128
Stabilize aromatic hydrocarbon pump	set	2.00	165,000	5%	8250	4331	4331	22739	1238	40,889
Regenerative cyclic gas compressor	set	1.00	510,000	5%	25500	13388	13388	70284	3825	126,384
Blossom	set	1.00	105,000	5%	5250	2756	2756	14470	788	26,020
Inflow	set	1.00	125,000	5%	6250	3281	3281	17227	938	30,977
Equipment insulation material	M3	28.00	25,400	5%	1270	667	667	3500	191	6,294
Equipment anticorrosive material	ton	0.64	4,700	5%	235	123	123	648	35	1,165
Metal structure platform ladder	ton	10.20	13,500	5%	675	354	354	1860	101	3,345
Carbon steel pipeline	M	2,601.00	117,000	5%	5850	3071	3071	16124	878	28,994
Stainless steel pipeline	M	83.00	35,400	5%	1770	929	929	4879	266	8,773
Alloy steel pipeline	M	128.00	36,000	5%	1800	945	945	4961	270	8,921
valve	piec e	502.00	406,000	10%	40600	11165	11165	58616	3045	124,591
Pipeline	piec e	341.00	2,600	5%	130	68	68	358	20	644
Flang	piec e	804.00	9,700	20%	1940	291	291	1528	73	4,123

Pad	piec e	1,052.00	10,300	20%	2060	309	1622	77	4,378
bolt	pair	3,002.00	14,600	20%	2920	438	2300	110	6,205
Spring branch suspension frame	ton	6.00	6,000	5%	300	158	827	45	1,487
Safety valve	piec e	9.00	40,800	10%	4080	1122	5891	306	12,521
Energy -saving tube	ton	2.84	3,500	20%	700	105	551	26	1,488
Pipe insulation	M3	50.00	30,200	20%	6040	906	4757	227	12,835
Pipeline anticorrosion and insulation	ton	0.58	200	20%	40	6	32	2	85
Pipeline static grounding		3.00	100	20%	20	3	16	1	43
Electric equipment distribution box	set	1.00	2,000	5%	100	53	276	15	496
Electric Equipment Bridge	M	65.00	900	5%	45	24	124	7	223
Electrical cable	M	3,005.00	48,900	20%	9780	1467	7702	367	20,783
Bimetallic thermometer	piec e	30.00	16,000	5%	800	420	2205	120	3,965
Original of armor temperature	piec e	39.00	9,600	5%	480	252	1323	72	2,379
Pressure gauge	piec e	49.00	22,000	5%	1100	578	3032	165	5,452
Pressure Transmitters	set	10.00	20,000	5%	1000	525	2756	150	4,956
Differential pressure transmitter	set	25.00	40,000	5%	2000	1050	5513	300	9,913
Wedge flowmeter	set	4.00	50,000	5%	2500	1313	6891	375	12,391
Rotor flow meter	set	1.00	2,000	5%	100	53	276	15	496
Vortex flow meter	set	1.00	2,000	5%	100	53	276	15	496
Electromagnetic Flowmeter	set	1.00	2,000	5%	100	53	276	15	496
Mass flowmeter	set	3.00	30,000	5%	1500	788	4134	225	7,434
Glass plate liquid position	set	4.00	800	5%	40	21	110	6	198
Magnetic liquid meter	set	2.00	400	5%	20	11	55	3	99
Differential pressure liquid level transmitter	set	3.00	6,000	5%	300	158	827	45	1,487
Inner float liquid level meter	set	2.00	6,000	5%	300	158	827	45	1,487
Magnetic telescopic liquid level instrument	set	2.00	22,000	5%	1100	578	3032	165	5,452

Combustible and toxic gas detector	set	10.00		24,000	5%	1200	630	630	3308	180	5,948
Oxidation of oxide oxygen content analyzer	piec e	1.00		30,000	5%	1500	788	788	4134	225	7,434
Self -force adjustment valve	piec e	1.00		10,000	10%	1000	275	275	1444	75	3,069
Regulating valve	piec e	16.00		170,000	10%	17000	4675	4675	24544	1275	52,169
Pneumatic switch valve	piec e	1.00		22,000	10%	2200	605	605	3176	165	6,751
Electric gate valve	piec e	1.00		18,000	10%	1800	495	495	2599	135	5,524
The electromagnetic valve	piec e	1.00		10,000	10%	1000	275	275	1444	75	3,069
Throttling device	set	10.00		26,000	5%	1300	683	683	3583	195	6,443
Meter pipeline	M	2,043.00		10,200	5%	510	268	268	1406	77	2,528
Instrumental valve	piec e	242.00		130,000	5%	6500	3413	3413	17916	975	32,216
Meter bridge	M	5,024.00		6,000	5%	300	158	158	827	45	1,487
Instrument cable	M	2,036.00		4,000	20%	800	120	120	630	30	1,700
Lighting distribution box	set	1.00		2,000	20%	400	60	60	315	15	850
Lighting lamp	set	52.00		23,000	20%	4600	690	690	3623	173	9,775
Lighting cable	M	2,362.00		39,000	20%	7800	1170	1170	6143	293	16,575
Lightning protection	piec e	4.00		1,000	20%	200	30	30	158	8	425
Lightning protection fire alarm system	M	42.00		1,000	20%	200	30	30	158	8	425
Water supply drainage pipeline	set	1.00		46,000	5%	2300	1208	1208	6339	345	11,399
Water -giving valve	M	216.00		9,000	5%	450	236	236	1240	68	2,230
Instevated heating and preservation of drainage catalyst	piec e	3.00		2,100	5%	105	55	55	289	16	520
	ton	0.10		100	5%	5	3	3	14	1	25
	ton	20.00		1,600,000	10%	160000	44000	44000	231000	12000	491,000



Fire hydrant	piec e	2.00		600	5%	30	16	16	16	83	5	149
Fire cannon	piec e	2.00		1,200	5%	60	32	32	32	165	9	297
Fire hydrant	piec e	4.00		3,000	5%	150	79	79	79	413	23	743
Handicualr dry powder fire extinguisher	set	12.00		200	5%	10	5	5	5	28	2	50
fire extinguisher	set	6.00		100	5%	5	3	3	3	14	1	25
Cycling dry powder fire extinguisher	set	1.00		2,000	5%	100	53	53	53	276	15	496
eye washer	piec e	1.00		3,000	20%	600	90	90	90	473	23	1,275
<b>0.03 MTPA MTBE Unit</b>				0		0	0	0	0	0	0	-
Steel Structure	ton	193.00		269,000	20%	53800	8070	8070	8070	42368	2018	114,325
Etheric reactor	set	2.00		217,500	5%	10875	0	0	0	0	1631	12,506
Methanol purifier	set	2.00		87,000	5%	4350	2284	2284	2284	11990	653	21,560
Catalytic distilled tower upper tower	set	1.00		109,000	5%	5450	0	0	0	0	818	6,268
Catalytic distilled tower lower tower	set	1.00		67,000	5%	3350	0	0	0	0	503	3,853
Methanol extraction tower	set	2.00		114,500	5%	5725	0	0	0	0	859	6,584
Methanol recycling tower	set	2.00		138,000	5%	6900	0	0	0	0	1035	7,935
Light gasoline separation tower	set	1.00		87,500	5%	4375	0	0	0	0	656	5,031
Ingredient buffer jar	set	2.00		94,500	5%	4725	2481	2481	2481	13023	709	23,418
Light gasoline separation tower back flow can	set	2.00		77,000	5%	3850	2021	2021	2021	10612	578	19,082
Deficiency Tower back	set	2.00		58,500	5%	2925	1536	1536	1536	8062	439	14,497
Recycling tower back stream can	set	2.00		47,000	5%	2350	1234	1234	1234	6477	353	11,647
Ether gasoline buffer jar	set	1.00		43,500	5%	2175	1142	1142	1142	5995	326	10,780
The distilled tower base oil-etherized product heat exchanger	set	1.00		17,000	5%	850	446	446	446	2343	128	4,213
Deficter tower bottom heavy boiling device	set	1.00		18,000	5%	900	473	473	473	2481	135	4,461
Cooling product cooler	set	1.00		19,000	5%	950	499	499	499	2618	143	4,708
Extract tower feed cooler	set	1.00		14,500	5%	725	381	381	381	1998	109	3,593

Methanol recycling tower feed-extraction water heat exchanger A	set	2.00	27,000	5%	1350	709	709	3721	203	6,691
Extracting water cooler	set	2.00	28,500	5%	1425	748	748	3928	214	7,063
Recycling tower top water cooler	set	2.00	24,500	5%	1225	643	643	3376	184	6,071
Recycling tower bottom heavy boiling device	set	1.00	13,000	5%	650	341	341	1792	98	3,222
Ether -based heating device	set	1.00	17,000	5%	850	446	446	2343	128	4,213
Ether gasoline cooler	set	1.00	17,500	5%	875	459	459	2412	131	4,337
Distilled tower water cooler	set	1.00	13,000	5%	650	341	341	1792	98	3,222
Gasoline separation tower entry and exit heat exchange	set	1.00	14,500	5%	725	381	381	1998	109	3,593
Light gasoline separation tower again	set	1.00	28,000	5%	1400	735	735	3859	210	6,939
Heavy gasoline cooler	set	2.00	17,500	5%	875	459	459	2412	131	4,337
Light gasoline separation tower top cooler	set	2.00	14,500	5%	725	381	381	1998	109	3,593
The cooling device of the distilled tower	set	4.00	30,500	5%	1525	801	801	4203	229	7,558
The cooling device of the distilled tower	set	2.00	20,500	5%	1025	538	538	2825	154	5,080
Recycling tower top empty cold device	set	2.00	20,500	5%	1025	538	538	2825	154	5,080
Ingredient oil pump	set	2.00	19,000	5%	950	499	499	2618	143	4,708
The distilled tower back pump	set	2.00	19,500	5%	975	512	512	2687	146	4,832
Deficter tower base oil pump	set	2.00	21,000	5%	1050	551	551	2894	158	5,204
Effectized distillation tower relay pump	set	2.00	13,000	5%	650	341	341	1792	98	3,222
Recycling tower back pump	set	2.00	14,000	5%	700	368	368	1929	105	3,469
Extraction water pump	set	2.00	12,000	5%	600	315	315	1654	90	2,974
Ether gasoline pump	set	4.00	31,000	5%	1550	814	814	4272	233	7,682
Light gasoline separation tower back pump	set	2.00	13,000	5%	650	341	341	1792	98	3,222
Light gasoline separate tower bottom pump	set	2.00	19,000	5%	950	499	499	2618	143	4,708
Ether reaction feed mixture	set	1.00	1,500	5%	75	39	39	207	11	372
Equipment insulation material	M3	36.00	33,400	5%	1670	877	877	4603	251	8,277
Equipment anticorrosive material	ton	0.91	4,300	5%	215	113	113	593	32	1,066
Metal structure platform ladder	ton	15.80	12,800	5%	640	336	336	1764	96	3,172

Carbon steel pipeline	M	3,598.00	175,000	5%	8750	4594	4594	24117	1313	43,367
Stainless steel pipeline	M	181.00	75,100	5%	3755	1971	1971	10350	563	18,611
Alloy steel pipeline	M	176.00	74,000	5%	3700	1943	1943	10198	555	18,338
valve	piec e	701.00	301,000	10%	30100	8278	8278	43457	2258	92,369
Pipeline	piec e	536.00	7,300	5%	365	192	192	1006	55	1,809
Flang	piec e	983.00	19,400	20%	3880	582	582	3056	146	8,245
Pad	piec e	1,697.00	19,500	20%	3900	585	585	3071	146	8,288
bolt	pair	3,864.00	22,900	20%	4580	687	687	3607	172	9,733
Spring branch suspension frame	ton	9.00	9,200	5%	460	242	242	1268	69	2,280
Safety valve	piec e	12.00	31,100	10%	3110	855	855	4490	233	9,544
Energy -saving tube	ton	2.57	3,100	20%	620	93	93	488	23	1,318
Pipe insulation	M3	63.00	46,800	5%	2340	1229	1229	6450	351	11,598
Pipeline anticorrosion and insulation	ton	0.56	200	5%	10	5	5	28	2	50
Pipeline static grounding		3.00	100	5%	5	3	3	14	1	25
Electric equipment distribution box	set	1.00	2,000	5%	100	53	53	276	15	496
Electric Equipment Bridge	M	59.00	800	5%	40	21	21	110	6	198
Electrical cable	M	6,506.00	92,000	20%	18400	2760	2760	14490	690	39,100
Bimetallic thermometer	piec e	53.00	18,000	5%	900	473	473	2481	135	4,461
Original of armor temperature	piec e	37.00	4,600	5%	230	121	121	634	35	1,140
Pressure gauge	piec e	68.00	21,000	5%	1050	551	551	2894	158	5,204
Pressure Transmitters	set	10.00	17,600	5%	880	462	462	2426	132	4,362
Differential pressure transmitter	set	25.00	32,000	5%	1600	840	840	4410	240	7,930
Wedge flowmeter	set	6.00	35,000	5%	1750	919	919	4823	263	8,673
Rotor flow meter	set	2.00	2,200	5%	110	58	58	303	17	545
Vortex flow meter	set	2.00	3,100	5%	155	81	81	427	23	768

Electromagnetic Flowmeter	set	2.00		2,400	5%	120	63	63	331	18	595
Mass flowmeter	set	3.00		15,000	5%	750	394	394	2067	113	3,717
Glass plate liquid position	set	4.00		400	5%	20	11	11	55	3	99
Magnetic liquid meter	set	2.00		200	5%	10	5	5	28	2	50
Differential pressure liquid level transmitter	set	3.00		3,700	5%	185	97	97	510	28	917
Inner float liquid level meter	set	4.00		4,500	5%	225	118	118	620	34	1,115
Magnetic telescopic liquid level instrument	set	2.00		11,000	5%	550	289	289	1516	83	2,726
Combustible and toxic gas detector	set	10.00		12,000	5%	600	315	315	1654	90	2,974
Regulating valve	piece	16.00		85,000	10%	8500	2338	2338	12272	638	26,084
Pneumatic switch valve	piece	1.00		11,000	10%	1100	303	303	1588	83	3,376
Electric gate valve	piece	1.00		9,000	10%	900	248	248	1299	68	2,762
The electromagnetic valve	set	1.00		5,000	10%	500	138	138	722	38	1,534
Throttling device	M	10.00		13,000	5%	650	341	341	1792	98	3,222
Meter pipeline	M	1,867.00		9,100	5%	455	239	239	1254	68	2,255
Instrumental valve	piece	242.00		65,000	10%	6500	1788	1788	9384	488	19,947
Meter bridge	M	4,806.00		5,700	5%	285	150	150	786	43	1,413
Instrument cable	M	2,036.00		4,000	20%	800	120	120	630	30	1,700
Lighting distribution box	set	1.00		2,000	5%	100	53	53	276	15	496
Lighting lamp	set	52.00		23,000	20%	4600	690	690	3623	173	9,775
Lighting cable	M	2,362.00		39,000	20%	7800	1170	1170	6143	293	16,575
Lightning protection	piece	4.00		1,000	20%	200	30	30	158	8	425
Lightning protection fire alarm system	M	42.00		1,000	20%	200	30	30	158	8	425
Water supply drainage pipeline	set	1.00		105,000	5%	5250	2756	2756	14470	788	26,020
Water -giving valve	M	216.00		9,000	5%	450	236	236	1240	68	2,230
Water -giving valve	piece	3.00		2,100	10%	210	58	58	303	16	644

Insteivated heating and preservation of drainage	ton	0.10		100	5%	5	3	3	14	1	25
catalyst	ton	15.00	450,000	10%	45000	12375	12375	12375	64969	3375	138,094
Fire hydrant	piece	2.00	600	5%	30	16	16	16	83	5	149
Fire cannon	piece	2.00	1,200	5%	60	32	32	32	165	9	297
Fire hydrant	piece	4.00	3,000	5%	150	79	79	79	413	23	743
Handicualr dry powder fire extinguisher	set	12.00	200	5%	10	5	5	5	28	2	50
fire extinguisher	set	6.00	100	5%	5	3	3	3	14	1	25
Cycling dry powder fire extinguisher	set	1.00	2,000	5%	100	53	53	53	276	15	496
eye washer	piece	1.00	3,000	20%	600	90	90	90	473	23	1,275
<b>50 T/h Sour Water Stripping Unit</b>					0	0	0	0	0	0	-
Steel Structure	ton	271.66	321,840	20%	64368	9655	9655	9655	50690	2414	136,782
Steam Tower	set	1.00	246,906	5%	12345	0	0	0	0	1852	14,197
Ingredients	set	1.00	45,144	5%	2257	1185	1185	1185	6221	339	11,187
Oil tank	set	1.00	12,870	20%	2574	386	386	386	2027	97	5,470
Ingredients	set	1.00	435,600	5%	21780	11435	11435	11435	60031	3267	107,947
Ingredient water buffer	set	1.00	435,600	5%	21780	11435	11435	11435	60031	3267	107,947
First -class coagulator	set	1.00	19,602	5%	980	515	515	515	2701	147	4,858
Two -level coagulator	set	1.00	14,256	5%	713	374	374	374	1965	107	3,533
Three -level coagulator	set	1.00	14,256	5%	713	374	374	374	1965	107	3,533
Ingredient water oil removal	set	1.00	50,490	5%	2525	1325	1325	1325	6958	379	12,512
Ammonia pot	set	1.00	60,192	5%	3010	1580	1580	1580	8295	451	14,916
Ammonia water seal	set	1.00	5,346	5%	267	140	140	140	737	40	1,325
Suction can	set	1.00	11,286	5%	564	296	296	296	1555	85	2,797
Concrete water recycling tank	set	1.00	29,304	20%	5861	879	879	879	4615	220	12,454
Downing cooling can	set	1.00	13,464	5%	673	353	353	353	1856	101	3,337
Ingredients	set	1.00	133,848	5%	6692	3514	3514	3514	18446	1004	33,169
Originally water buffer	set	1.00	128,304	5%	6415	3368	3368	3368	17682	962	31,795

Put the torch condensate hydraulic delivery can	set	1.00		7,524	5%	376	198	198	1037	56	1,865
Cold inlet cooler	set	1.00		31,482	5%	1574	826	826	4339	236	7,802
Ingredients water-purification water first-class heat exchanger	set	1.00		31,482	5%	1574	826	826	4339	236	7,802
First -level condensate cooler	set	1.00		162,954	5%	8148	4278	4278	22457	1222	40,382
Ingredients water-purifying water secondary heat exchanger	set	1.00		261,360	5%	13068	6861	6861	36019	1960	64,768
Heavier	set	1.00		141,174	5%	7059	3706	3706	19456	1059	34,985
Leveling and two -level coagulative liquid cooler	set	1.00		41,976	5%	2099	1102	1102	5785	315	10,402
Two -level condensate cooler	set	1.00		40,194	5%	2010	1055	1055	5539	301	9,961
Three -level condensate cooler	set	1.00		40,194	5%	2010	1055	1055	5539	301	9,961
Purifying water cooler	set	1.00		91,872	5%	4594	2412	2412	12661	689	22,767
Ammonia cooler	set	1.00		30,294	5%	1515	795	795	4175	227	7,507
Purifying water and air -cooled device	set	2.00		134,244	5%	6712	3524	3524	18501	1007	33,267
Steaming cold device	set	1.00		36,036	5%	1802	946	946	4966	270	8,930
Raw material water pressure pump	set	1.00		42,570	5%	2129	1117	1117	5867	319	10,549
Raw material water pressure pump	set	1.00		42,570	5%	2129	1117	1117	5867	319	10,549
Dirty pump	set	1.00		6,138	5%	307	161	161	846	46	1,521
Raw material water inlet pump	set	2.00		64,350	5%	3218	1689	1689	8868	483	15,947
Ammonia pump	set	2.00		26,730	5%	1337	702	702	3684	200	6,624
Condensate pump	set	2.00		20,592	5%	1030	541	541	2838	154	5,103
Purifying water pressure pump	set	2.00		58,410	5%	2921	1533	1533	8050	438	14,475
Ingredient water filter	set	2.00		12,474	5%	624	327	327	1719	94	3,091
Acid qi closed sampling device	set	1.00		9,306	5%	465	244	244	1282	70	2,306
First -stage division liquid closed sampler	set	1.00		8,910	5%	446	234	234	1228	67	2,208
Two -level coagulation liquid closed sampler	set	1.00		8,910	5%	446	234	234	1228	67	2,208
Three -level coagulant liquid closed samplers	set	1.00		8,910	5%	446	234	234	1228	67	2,208
Furemidal closed sampling sampler	set	1.00		8,910	5%	446	234	234	1228	67	2,208
Static mixture of ammonia hybridizers	set	1.00		7,128	5%	356	187	187	982	53	1,766

Steam temperature reduction	set	1.00		5,544	5%	277	146	146	764	42	1,374
Raw material water removal tank top safety valve	set	1.00		3,025	10%	303	83	83	437	23	928
Stepota bottom safety valve	set	1.00		3,025	5%	151	79	79	417	23	750
Concrete water recovery tank top safety valve	set	1.00		3,025	5%	151	79	79	417	23	750
Equipment insulation material	M3	134.00		26,400	5%	1320	693	693	3638	198	6,542
Device primer	ton	3.00		2,310	5%	116	61	61	318	17	572
Facial painting	ton	6.00		3,190	5%	160	84	84	440	24	791
Metal structure platform ladder	ton	35.00		45,650	5%	2283	1198	1198	6291	342	11,313
Pipeline anticorrosive insulation material	M3	336.00		25,850	5%	1293	679	679	3562	194	6,406
Pipeline	ton	11.00		8,470	5%	424	222	222	1167	64	2,099
Duct	ton	22.00		11,550	5%	578	303	303	1592	87	2,862
Carbon steel pipeline	M	6,612.00		114,620	5%	5731	3009	3009	15796	860	28,404
Stainless steel pipeline	M	66.50		10,450	5%	523	274	274	1440	78	2,590
Craft valve	piece	1,148.00		193,160	10%	19316	5312	5312	27887	1449	59,276
elbow	piece	453.00		5,940	20%	1188	178	178	936	45	2,525
Pad	piece	2,296.00		88,440	20%	17688	2653	2653	13929	663	37,587
Flang	piece	2,296.00		126,280	20%	25256	3788	3788	19889	947	53,669
Pipeline insulation material	M3	65.00		5,005	5%	250	131	131	690	38	1,240
Pipeline	ton	5.50		4,290	5%	215	113	113	591	32	1,063
Duct	ton	11.00		5,720	5%	286	150	150	788	43	1,417
Pipeline static grounding line		15.00		220	20%	44	7	7	35	2	94
Electrical cable bridge	ton	11.60		12,100	20%	2420	363	363	1906	91	5,143
Electrical cable	M	5,200.00		79,750	20%	15950	2393	2393	12561	598	33,894
Lighting distribution box	set	2.00		6,160	20%	1232	185	185	970	46	2,618
Lighting lamp	set	115.00		36,190	20%	7238	1086	1086	5700	271	15,381
Lightning protection	M	1,410.00		3,850	20%	770	116	116	606	29	1,636

Bimetallic thermometer	piec e	26.00		2,860	5%	143	75	75	394	21	709
Armor temperature element	piec e	28.00		4,620	5%	231	121	121	637	35	1,145
Pressure gauge	piec e	29.00		798	5%	40	21	21	110	6	198
Pressure Transmitters	set	19.00		20,900	5%	1045	549	549	2880	157	5,179
Differential pressure transmitter	set	16.00		17,600	5%	880	462	462	2426	132	4,362
Throttling device	set	12.00		13,200	5%	660	347	347	1819	99	3,271
Balanced flowmeter	set	2.00		1,100	5%	55	29	29	152	8	273
Differential pressure transmitter	set	1.00		1,650	5%	83	43	43	227	12	409
Rotor flow meter	set	1.00		3,850	5%	193	101	101	531	29	954
Vortex flow meter	set	2.00		2,200	5%	110	58	58	303	17	545
Electromagnetic Flowmeter	set	3.00		4,950	5%	248	130	130	682	37	1,227
Glass plate liquid position	set	13.00		5,170	5%	259	136	136	712	39	1,281
Magnetic Floating Solid Quarter Meter	set	1.00		3,300	5%	165	87	87	455	25	818
Differential pressure liquid level transmitter	set	9.00		9,900	5%	495	260	260	1364	74	2,453
Floating ball liquid level meter	set	1.00		1,100	5%	55	29	29	152	8	273
Floating steel band liquid level instrument	set	1.00		1,100	5%	55	29	29	152	8	273
Back gas and toxic gas detector	set	23.00		37,950	5%	1898	996	996	5230	285	9,404
Regulating valve	set	20.00		176,000	10%	17600	4840	4840	25410	1320	54,010
Pneumatic switch valve	set	1.00		11,000	10%	1100	303	303	1588	83	3,376
Meter pipeline	M	2,366.00		14,410	5%	721	378	378	1986	108	3,571
Instrumental valve	piec e	87.00		22,000	10%	2200	605	605	3176	165	6,751
Instrument cable	M	26,000.00		24,750	20%	4950	743	743	3898	186	10,519
Giving a drain pipeline	M	413.00		10,890	5%	545	286	286	1501	82	2,699
Water -giving valve	piec e	4.00		990	10%	99	27	27	143	7	304
Catalyst and chemical agent	ton	0.80		4,620	10%	462	127	127	667	35	1,418
Fire hydrant	set	8.00		8,800	5%	440	231	231	1213	66	2,181
Fireproof	set	53.00		660	5%	33	17	17	91	5	164



eye washer	set	3.00		5,390	20%	1078	162	162	849	40	2,291
<b>80 T/h Amine Regeneration Unit</b>				0		0	0	0	0	0	-
Steel Structure	ton	48.38		57,360	20%	11472	1721	1721	9034	430	24,378
Regeneration tower	set	1.00		275,550	5%	13778	0	0	0	2067	15,844
Rich Flash Steaming Tank	set	1.00		23,430	20%	4686	703	703	3690	176	9,958
Solvent storage tank	set	1.00		58,410	20%	11682	1752	1752	9200	438	24,824
Regenerative tower top backbone can	set	1.00		69,630	20%	13926	2089	2089	10967	522	29,593
Solvent tank	set	1.00		10,725	20%	2145	322	322	1689	80	4,558
Seal	set	1.00		990	0%	0	25	25	130	7	187
Downing cooling can	set	1.00		5,115	5%	256	134	134	705	38	1,268
Poor and rich liquid level first -level heat exchanger	set	1.00		375,045	5%	18752	9845	9845	51686	2813	92,941
Poor and rich liquid secondary heat exchanger	set	1.00		375,045	5%	18752	9845	9845	51686	2813	92,941
Poverty cooler	set	2.00		187,440	5%	9372	4920	4920	25832	1406	46,450
Regeneration tower top condenser	set	2.00		83,160	5%	4158	2183	2183	11460	624	20,608
Heavier	set	1.00		121,440	5%	6072	3188	3188	16736	911	30,094
Recycling Tower Top Circles Revise Cold Clie	set	1.00		156,585	5%	7829	4110	4110	21579	1174	38,804
Poverty pump	set	2.00		56,760	5%	2838	1490	1490	7822	426	14,066
Regenerative Tower Top Return Pump	set	2.00		44,550	5%	2228	1169	1169	6140	334	11,040
Solvent to pump	set	2.00		9,240	5%	462	243	243	1273	69	2,290
Regenerative tower bottom pump	set	2.00		56,760	5%	2838	1490	1490	7822	426	14,066
Rich inlet pump	set	2.00		56,760	5%	2838	1490	1490	7822	426	14,066
Liquid filter	set	1.00		52,800	5%	2640	1386	1386	7277	396	13,085
Poverty filter	set	1.00		52,800	5%	2640	1386	1386	7277	396	13,085
Regenerative acid density closure sampler	set	1.00		7,755	5%	388	204	204	1069	58	1,922
Rich Flash Steamed Top Safety Valve	set	1.00		6,270	5%	314	165	165	864	47	1,554
Regenerative tower bottom safety valve	set	1.00		6,270	5%	314	165	165	864	47	1,554
Equipment insulation material	M3	50.00		3,850	5%	193	101	101	531	29	954
Device primer	ton	3.00		2,310	20%	462	69	69	364	17	982
Facial painting	ton	6.00		3,190	20%	638	96	96	502	24	1,356

Metal structure platform ladder	ton	25.00	32,560	20%	6512	977	977	5128	244	13,838
Electrical operation column	piec e	10.00	440	20%	88	13	13	69	3	187
Electrical cable	M	3,260.00	50,050	20%	10010	1502	1502	7883	375	21,271
Lightning protection	M	180.00	1,210	20%	242	36	36	191	9	514
Carbon steel pipeline	M	5,543.00	96,360	5%	4818	2529	2529	13280	723	23,879
Stainless steel pipeline	M	136.00	20,900	5%	1045	549	549	2880	157	5,179
Craft valve	piec e	854.00	158,147	10%	15815	4349	4349	22832	1186	48,531
elbow	piec e	522.00	7,623	20%	1525	229	229	1201	57	3,240
Pad	piec e	1,708.00	72,358	20%	14472	2171	2171	11396	543	30,752
Flang	piec e	1,708.00	103,334	20%	20667	3100	3100	16275	775	43,917
Bimetallic thermometer	piec e	11.00	1,331	5%	67	35	35	183	10	330
Armor hotpig	piec e	10.00	1,815	5%	91	48	48	250	14	450
Pressure gauge, vacuum table	piec e	19.00	575	5%	29	15	15	79	4	142
Intelligent pressure transmitter	set	8.00	9,680	5%	484	254	254	1334	73	2,399
Intelligent differential pressure transmitter	set	5.00	5,500	5%	275	144	144	758	41	1,363
Glass plate (tube) liquid level meter	set	8.00	3,300	5%	165	87	87	455	25	818
Granite pressure, differential pressure transmitter	set	3.00	3,300	5%	165	87	87	455	25	818
Floating ball liquid level meter/liquid level switch	set	1.00	1,100	10%	110	30	30	159	8	338
Steel band liquid level meter	set	2.00	1,100	5%	55	29	29	152	8	273
Combustion/toxic gas alarm	set	6.00	9,900	5%	495	260	260	1364	74	2,453
Throttling device	set	4.00	4,400	5%	220	116	116	606	33	1,090
Granite pressure, differential pressure transmitter	set	1.00	1,100	5%	55	29	29	152	8	273

Pneumatic control valve	set	6.00		52,800	10%	5280	1452	1452	7623	396	16,203
Pneumatic switch valve	set	1.00		11,000	10%	1100	303	303	1588	83	3,376
Meter pipeline	M	1,185.00		7,260	5%	363	191	191	1001	54	1,799
Instrumental valve	piece	36.00		9,130	10%	913	251	251	1318	68	2,802
Instrument cable	M	8,167.00		7,810	20%	1562	234	234	1230	59	3,319
Water supply drainage pipeline	M	510.00		37,180	10%	3718	1022	1022	5368	279	11,410
Water -giving valve	piece	12.00		2,640	10%	264	73	73	381	20	810
<b>Catalyst and chemical agent</b>	ton	40.00		126,170	10%	12617	3470	3470	18216	946	38,718
fire hydrant	set	2.00		1,100	5%	55	29	29	152	8	273
Practical fire extinguisher	set	16.00		440	5%	22	12	12	61	3	109
Cycling fire extinguisher	set	1.00		4,180	5%	209	110	110	576	31	1,036
<b>0.05 MTPA Sulfate Unit</b>				0		0	0	0	0	0	-
Steel Structure	ton	54.00		63,960	20%	12792	1919	1919	10074	480	27,183
Take off the tower	set	1.00		5,170	5%	259	0	0	0	39	297
packed tower	set	1.00		53,240	5%	2662	0	0	0	399	3,061
Dry tower	set	1.00		61,930	5%	3097	0	0	0	464	3,561
Absorbing tower	set	2.00		123,970	5%	6199	0	0	0	930	7,128
Power wavetail gas absorption tower	set	1.00		25,080	5%	1254	0	0	0	188	1,442
Boiler sewage container	set	1.00		6,490	20%	1298	195	195	1022	49	2,758
High slot	set	1.00		6,930	5%	347	182	182	955	52	1,717
Sewage tank	set	1.00		6,930	20%	1386	208	208	1091	52	2,945
Circulatory groove	set	3.00		55,660	5%	2783	1461	1461	7671	417	13,793
Underground groove	set	2.00		6,930	5%	347	182	182	955	52	1,717
Plate heat exchanger	set	1.00		27,830	5%	1392	731	731	3835	209	6,897
Plate heat exchanger	set	1.00		25,300	5%	1265	664	664	3487	190	6,270
No. I heat exchanger	set	1.00		14,960	5%	748	393	393	2062	112	3,707
No. II heat exchanger	set	1.00		16,280	5%	814	427	427	2244	122	4,034
No. III heat exchanger	set	1.00		61,490	5%	3075	1614	1614	8474	461	15,238
IV heat exchanger	set	1.00		70,510	5%	3526	1851	1851	9717	529	17,473
Pump	set	2.00		15,510	5%	776	407	407	2137	116	3,844
Dynamic wave dilute acid cycle pump	set	2.00		10,340	5%	517	271	271	1425	78	2,562

Placement tower thin acid cycle pump	set	2.00				9,240	5%	462	243	243	1273	69	2,290
Sewage pump	set	1.00				2,420	5%	121	64	64	334	18	600
Dry -absorbing cycle pump	set	4.00				37,180	5%	1859	976	976	5124	279	9,214
Underground slot pump	set	2.00				18,590	5%	930	488	488	2562	139	4,607
Alkaline pump	set	2.00				5,830	5%	292	153	153	803	44	1,445
Tail gas absorption cycle pump	set	2.00				6,160	5%	308	162	162	849	46	1,527
Converter	set	1.00				128,920	5%	6446	3384	3384	17767	967	31,948
Hydrogen sulfur sulfur incineration furnace	set	1.00				343,750	5%	17188	9023	9023	47373	2578	85,186
Remaining heat boiler	set	1.00				154,660	5%	7733	4060	4060	21314	1160	38,327
A period of electric heating furnace	set	1.00				13,420	5%	671	352	352	1849	101	3,326
Four -stage electric heating furnace	set	1.00				6,710	5%	336	176	176	925	50	1,663
Tape conveyor	set	1.00				9,240	5%	462	243	243	1273	69	2,290
Air drum	set	1.00				9,240	5%	462	243	243	1273	69	2,290
SO2 blossom	set	1.00				74,250	5%	3713	1949	1949	10233	557	18,400
Fast sulfur groove	set	1.00				27,830	5%	1392	731	731	3835	209	6,897
Clarify	set	1.00				40,260	5%	2013	1057	1057	5548	302	9,977
Sulfur	piec e	2.00				9,240	5%	462	243	243	1273	69	2,290
Sulfide	piec e	2.00				14,740	5%	737	387	387	2031	111	3,653
Burning gun	piec e	2.00				11,330	5%	567	297	297	1561	85	2,808
Power wave washing device	set	1.00				66,660	5%	3333	1750	1750	9187	500	16,519
Safe seal	set	1.00				990	5%	50	26	26	136	7	245
Sour seal	set	2.00				2,090	5%	105	55	55	288	16	518
Electrical fog device	set	1.00				78,870	5%	3944	2070	2070	10869	592	19,545
Purification of pipelines, pipes, pads, flanges, flanges	set	1.00				100,540	5%	5027	2639	2639	13856	754	24,915
Manual gourd chimney	set	2.00				1,980	5%	99	52	52	273	15	491
Dry -absorbing section pipes, pipes, pads, flanges, flanges	set	1.00				11,000	5%	550	289	289	1516	83	2,726
	set	1.00				171,930	5%	8597	4513	4513	23694	1289	42,606

<b>Converter catalyst</b>	ton	25.00	92,840	5%	4642	2437	2437	2437	12795	696	23,007
Carbon steel pipeline	M	3,566.00	61,930	5%	3097	1626	1626	1626	8535	464	15,347
Stainless steel pipeline	M	366.00	56,320	5%	2816	1478	1478	1478	7762	422	13,957
Pipeline	piec e	522.00	6,930	5%	347	182	182	182	955	52	1,717
Pad	piec e	864.00	33,220	20%	6644	997	997	997	5232	249	14,119
Flang	piec e	864.00	47,520	20%	9504	1426	1426	1426	7484	356	20,196
Craft valve	piec e	432.00	72,710	10%	7271	2000	2000	2000	10498	545	22,313
Thermal puppet	piec e	37.00	4,510	5%	226	118	118	118	622	34	1,118
Thermal puppet	piec e	30.00	2,640	5%	132	69	69	69	364	20	654
Intelligent pressure transmitter	set	30.00	30,910	5%	1546	811	811	811	4260	232	7,660
Differential pressure transmitter	set	9.00	7,700	5%	385	202	202	202	1061	58	1,908
Divide pressure transmitter	set	16.00	33,000	5%	1650	866	866	866	4548	248	8,178
Liquid	piec e	14.00	19,250	5%	963	505	505	505	2653	144	4,770
Electromagnetic Flowmeter	set	2.00	7,260	5%	363	191	191	191	1001	54	1,799
Pole board flow meter	set	2.00	1,760	5%	88	46	46	46	243	13	436
Combust -flammable and toxic and harmful alarm	set	8.00	8,250	5%	413	217	217	217	1137	62	2,044
Stainless steel shock anti -shock pressure gauge	piec e	10.00	1,100	5%	55	29	29	29	152	8	273
Regulating valve	piec e	14.00	49,500	10%	4950	1361	1361	1361	7147	371	15,190
Oxygen analyzer	set	1.00	3,630	5%	182	95	95	95	500	27	900
Acid analyzer	set	3.00	8,250	5%	413	217	217	217	1137	62	2,044
Sulfur dioxide analyzer	set	1.00	3,630	5%	182	95	95	95	500	27	900
Leakage detector	set	3.00	1,100	5%	55	29	29	29	152	8	273
<b>Crude oil tank group two</b>			0		0	0	0	0	0	0	-

Steel Structure	ton	300.00	1,380,000	20%	276000	41400	41400	217350	10350	586,500
Light crude oil tank	ton	17,756.00	33,847,536	20%	6769507	1015426	1015426	5330987	253857	14,385,203
Lightweight/heavy crude oil tank	ton	6,183.00	11,779,680	20%	2355936	353390	353390	1855300	88348	5,006,364
Lightweight crude oil supply pump	set	2.00	360,000	5%	18000	9450	9450	49613	2700	89,213
Crude oil bleeding pump pump	set	2.00	408,000	5%	20400	10710	10710	56228	3060	101,108
Lightweight crude oil sample	set	1.00	180,000	5%	9000	4725	4725	24806	1350	44,606
Lightweight crude oil storage tank dehydrator	set	3.00	1,180,800	20%	236160	35424	35424	185976	8856	501,840
Heavy crude oil storage tank dehydrator	set	1.00	393,600	20%	78720	11808	11808	61992	2952	167,280
Lightweight crude oil tank spin -spray and spray mixer	set	3.00	129,600	20%	25920	3888	3888	20412	972	55,080
Heavy crude oil tank rotary spray and spray mixer	set	1.00	43,200	20%	8640	1296	1296	6804	324	18,360
Storage tank insulation material	M3	2,400.00	1,736,400	20%	347280	52092	52092	273483	13023	737,970
Storage tank anticorrosive material	M2	70,180.00	245,520	20%	49104	7366	7366	38669	1841	104,346
Carbon steel pipeline	M	1,104.00	371,040	5%	18552	9740	9740	51134	2783	91,948
valve	piec e	183.00	33,600	10%	3360	924	924	4851	252	10,311
Pipeline	piec e	554.00	5,160	5%	258	135	135	711	39	1,279
Pad	piec e	422.00	4,800	20%	960	144	144	756	36	2,040
Flang	piec e	416.00	6,240	20%	1248	187	187	983	47	2,652
Hangers	ton	0.46	600	5%	30	16	16	83	5	149
Steel plate	ton	6.77	8,280	5%	414	217	217	1141	62	2,052
Pipe expansion festival	piec e	4.00	12,720	5%	636	334	334	1753	95	3,152
bolt	set	3,286.00	30,840	5%	1542	810	810	4250	231	7,643
Pipeline anticorrosive material	ton	0.98	600	5%	30	16	16	83	5	149
Hangers	M	960.00	1,920	5%	96	50	50	265	14	476
Affiliated bolt	set	8,800.00	16,560	20%	3312	497	497	2608	124	7,038

Safety valve	piec e	7.00	19,080	10%	1908	525	525	2755	143	5,855
Pipeline static grounding line		35.00	720	5%	36	19	19	99	5	178
Electrical distribution box	set	1.00	2,280	5%	114	60	60	314	17	565
Electrical cable	M	1,475.00	17,520	20%	3504	526	526	2759	131	7,446
Lighting distribution box	set	1.00	2,280	20%	456	68	68	359	17	969
Explosion -proof lamp	set	1.00	22,200	20%	4440	666	666	3497	167	9,435
Lightning protection	piec e	32.00	4,560	20%	912	137	137	718	34	1,938
Lightning protection	M	1,536.00	25,440	20%	5088	763	763	4007	191	10,812
Bimetallic thermometer	piec e	9.00	2,700	5%	135	71	71	372	20	669
Integrated temperature transmitter	set	1.00	4,200	5%	210	110	110	579	32	1,041
Multi -point temperature transmitter	set	4.00	67,200	5%	3360	1764	1764	9261	504	16,653
Pressure gauge, vacuum table	set	18.00	18,900	5%	945	496	496	2605	142	4,684
Intelligent differential pressure transmitter	set	4.00	16,800	5%	840	441	441	2315	126	4,163
Ultrasonic	set	8.00	33,600	5%	1680	882	882	4631	252	8,327
Radar meter	set	4.00	84,000	5%	4200	2205	2205	11576	630	20,816
Back gas and toxic gas detector	set	22.00	138,600	5%	6930	3638	3638	19101	1040	34,347
Pneumatic control valve	set	1.00	42,000	10%	4200	1155	1155	6064	315	12,889
Pneumatic switch valve	set	20.00	840,000	10%	84000	23100	23100	121275	6300	257,775
Electric switch valve	piec e	4.00	67,200	10%	6720	1848	1848	9702	504	20,622
Switch button	M	4.00	240	5%	12	6	6	33	2	59
Meter pipeline	M	2,789.00	27,000	5%	1350	709	709	3721	203	6,691
Instrumental valve	piec e	52.00	18,720	10%	1872	515	515	2703	140	5,745
Instrument cable	M	51,524.00	185,400	5%	9270	4867	4867	25550	1391	45,944
Water supply drainage pipeline	M	6,001.00	168,660	20%	33732	5060	5060	26564	1265	71,681
Water -giving valve	piec e	144.00	108,720	10%	10872	2990	2990	15696	815	33,363
Inspeifying anticorrosive materials for drainage pipelines	M2	1,850.00	15,840	20%	3168	475	475	2495	119	6,732





Pipeline	piec e	1,097.00	75,680	5%	3784	1987	1987	10430	568	18,754
Pipe expansion festival	piec e	6.00	140,800	5%	7040	3696	3696	19404	1056	34,892
Flang	piec e	737.00	80,960	20%	16192	2429	2429	12751	607	34,408
Pad	piec e	951.00	78,320	20%	15664	2350	2350	12335	587	33,286
bolt	pair	7,000.00	180,510	20%	36102	5415	5415	28430	1354	76,717
Pipeline insulation material	M3	70.00	46,200	20%	9240	1386	1386	7277	347	19,635
Pipeline anticorrosive material	M2	2,085.00	1,540	20%	308	46	46	243	12	655
Hangers	ton	9.70	32,670	5%	1634	858	858	4502	245	8,096
Safety valve	piec e	26.00	56,760	10%	5676	1561	1561	8195	426	17,418
Pipeline insulation material	M3	7.00	13,860	20%	2772	416	416	2183	104	5,891
Pipeline anticorrosive material	M2	4,484.00	6,270	20%	1254	188	188	988	47	2,665
Electrical distribution box	set	2.00	12,540	5%	627	329	329	1728	94	3,108
Electrical cable	M	670.00	21,780	20%	4356	653	653	3430	163	9,257
Lighting lamp	set	1.00	65,010	20%	13002	1950	1950	10239	488	27,629
Lightning protection	piec e	31.00	12,210	20%	2442	366	366	1923	92	5,189
Lightning protection	M	36.00	1,650	20%	330	50	50	260	12	701
Bimetallic thermometer	piec e	14.00	11,550	5%	578	303	303	1592	87	2,862
Integrated temperature transmitter	set	9.00	29,700	5%	1485	780	780	4093	223	7,360
Multi-point temperature transmitter	set	4.00	52,800	5%	2640	1386	1386	7277	396	13,085
Pressure gauge, vacuum table	set	39.00	32,175	5%	1609	845	845	4434	241	7,973
Intelligent pressure transmitter	set	14.00	92,400	5%	4620	2426	2426	12734	693	22,898
Intelligent differential pressure liquid level transmitter	set	13.00	85,800	5%	4290	2252	2252	11824	644	21,262
Radar meter	set	13.00	214,500	10%	21450	5899	5899	30968	1609	65,825
Back gas and toxic gas detector	set	17.00	84,150	5%	4208	2209	2209	11597	631	20,853
Pneumatic switch valve	set	34.00	1,122,000	5%	56100	29453	29453	154626	8415	278,046

Electric switch valve	set	8.00		264,000	5%	13200	6930	6930	36383	1980	65,423
Switch button	piec e	13.00		2,145	5%	107	56	56	296	16	532
Meter pipeline	M	3,300.00		58,410	5%	2921	1533	1533	8050	438	14,475
Instrumental valve	piec e	88.00		29,040	10%	2904	799	799	4193	218	8,912
Instrument cable	M	38,440.00		253,440	20%	50688	7603	7603	39917	1901	107,712
Water supply drainage pipeline	M	5,379.00		251,790	20%	50358	7554	7554	39657	1888	107,011
Water -giving valve	piec e	232.00		113,850	10%	11385	3131	3131	16437	854	34,938
Insulation and anticorrosive for drainage pipelines	M2	21,183.00		43,230	20%	8646	1297	1297	6809	324	18,373
Fireproof	set	24.00		15,840	5%	792	416	416	2183	119	3,925
Air bubble generator	set	34.00		44,880	5%	2244	1178	1178	6185	337	11,122
<b>Oil loading and unloading facilities</b>				0		0	0	0	0	0	-
Steel Structure	ton	67.20		68,400	20%	13680	2052	2052	10773	513	29,070
Load	set	100.00		4,687,500	20%	937500	140625	140625	738281	35156	1,992,188
Carbon steel pipeline	M	13,770.00		393,800	5%	19690	10337	10337	54271	2954	97,589
Valve and other	piec e	129.00		134,200	10%	13420	3691	3691	19375	1007	41,183
Electrical cable	M	1,776.00		191,400	20%	38280	5742	5742	30146	1436	81,345
Electrical bridge	M	260.00		39,600	20%	7920	1188	1188	6237	297	16,830
Explosion -proof lighting fixture	set	20.00		146,300	20%	29260	4389	4389	23042	1097	62,178
Lightning protection	M	240.00		36,300	20%	7260	1089	1089	5717	272	15,428
Lightning protection	piec e	12.00		15,400	20%	3080	462	462	2426	116	6,545
fire alarm system	set	1.00		22,000	5%	1100	578	578	3032	165	5,452
Industrial TV monitoring system	set	1.00		22,000	20%	4400	660	660	3465	165	9,350
Drainage pipe and anticorrosive	M	230.00		25,300	20%	5060	759	759	3985	190	10,753
<b>Factory process and thermal tube network</b>				0		0	0	0	0	0	-
Steel Structure	ton	#####		14,885,904	20%	2977181	446577	446577	2344530	111644	6,326,509
Carbon steel pipeline	M	#####		13,847,240	5%	692362	363490	363490	1908323	103854	3,431,519

Alloy steel pipeline	M	2,512.00	1,956,328	5%	97816	51354	51354	269606	14672	484,803
Stainless steel pipeline	M	601.00	163,592	5%	8180	4294	4294	22545	1227	40,540
Valve and other	piece	720.00	871,200	10%	87120	23958	23958	125780	6534	267,350
Pipeline static grounding		118.00	9,680	5%	484	254	254	1334	73	2,399
Instrumentation	set	1,353.00	112,288	5%	5614	2948	2948	15475	842	27,826
Instrument cable	M	#####	1,474,748	20%	294950	44242	44242	232273	11061	626,768
<b>Subtotal</b>			33,320,980		0	833025	833025	4373379	249907	6,289,335
<b>Compressed air station (2)</b>			0		0	0	0	0	0	-
Steel Structure	ton	74.25	77,440	20%	15488	2323	2323	12197	581	32,912
Nitrogen storage tank	set	1.00	151,492	20%	30298	4545	4545	23860	1136	64,384
Nitrogen buffer	set	1.00	151,492	20%	30298	4545	4545	23860	1136	64,384
Purified wind tank	set	2.00	302,984	20%	60597	9090	9090	47720	2272	128,768
Non-purified wind tank	set	1.00	151,492	20%	30298	4545	4545	23860	1136	64,384
Liquid nitrogen storage tank	set	2.00	1,179,992	20%	235998	35400	35400	185849	8850	501,497
Liquid nitrogen system nitrogen buffer can	set	1.00	378,004	20%	75601	11340	11340	59536	2835	160,652
Screw -type air compressor	set	5.00	567,248	20%	113450	17017	17017	89342	4254	241,080
Combined dryer	set	2.00	48,400	5%	2420	1271	1271	6670	363	11,994
Nitrogen -making adsorption machine	set	2.00	226,996	5%	11350	5959	5959	31283	1702	56,252
Oil-free regeneration dryer	set	2.00	116,160	5%	5808	3049	3049	16008	871	28,786
Nitrogen -making machine (including empty pressure machine)	set	1.00	118,096	5%	5905	3100	3100	16275	886	29,266
Precision filter	set	2.00	29,040	5%	1452	762	762	4002	218	7,196
Cold dryer	set	1.00	38,720	5%	1936	1016	1016	5336	290	9,595
Liquid nitrogen pump	set	2.00	52,756	5%	2638	1385	1385	7270	396	13,074
Air temperature storage booster	set	1.00	29,040	5%	1452	762	762	4002	218	7,196
Air temperature vaporizer	set	2.00	680,504	5%	34025	17863	17863	93782	5104	168,637
Non-purified compressed air tank top safety valve	set	1.00	18,392	10%	1839	506	506	2655	138	5,644
Purify the safety valve of the air tank top	set	2.00	36,784	5%	1839	966	966	5069	276	9,116
valve	piece	149.00	184,404	10%	18440	5071	5071	26623	1383	56,589

Carbon steel pipeline	M	11,044.00	826,672	5%	41334	21700	21700	113926	6200	204,860
Pipeline	piec e	435.00	16,456	5%	823	432	432	2268	123	4,078
Flang	piec e	333.00	20,328	20%	4066	610	610	3202	152	8,639
Pad	piec e	346.00	15,972	20%	3194	479	479	2516	120	6,788
bolt	pair	2,340.00	88,572	20%	17714	2657	2657	13950	664	37,643
Pipeline anticorrosive material	ton	0.17	339	20%	68	10	10	53	3	144
Hangers	ton	1.50	8,228	5%	411	216	216	1134	62	2,039
Electrical cable	M	7,950.00	109,868	5%	5493	2884	2884	15141	824	27,227
Galvanized steel	M	455.00	6,776	5%	339	178	178	934	51	1,679
Galvanized angle steel	M	655.00	5,808	5%	290	152	152	800	44	1,439
Differential pressure transmitter	set	4.00	19,360	5%	968	508	508	2668	145	4,798
Electromagnetic Flowmeter	set	1.00	7,260	5%	363	191	191	1001	54	1,799
Regulating valve	set	3.00	90,508	10%	9051	2489	2489	13067	679	27,775
Throttling device	set	4.00	19,360	5%	968	508	508	2668	145	4,798
Armor temperature element	piec e	2.00	1,452	5%	73	38	38	200	11	360
Bimetallic thermometer	piec e	2.00	2,420	5%	121	64	64	334	18	600
Pressure Transmitters	set	7.00	33,880	5%	1694	889	889	4669	254	8,396
Pressure gauge	piec e	5.00	484	5%	24	13	13	67	4	120
Water supply drainage pipeline	M	419.00	76,472	5%	3824	2007	2007	10539	574	18,951
Pipeline	piec e	24.00	97	5%	5	3	3	13	1	24
Flang	piec e	22.00	1,452	20%	290	44	44	229	11	617
Pad	piec e	22.00	968	20%	194	29	29	152	7	411
bolt	pair	120.00	4,356	20%	871	131	131	686	33	1,851
2#fire protection facilities			0		0	0	0	0	0	-

Firefighting pump	set	3.00	58,080	5%	2904	1525	1525	8004	436	14,393
Fire pressure pump	set	2.00	1,936	5%	97	51	51	267	15	480
Fire valve	piec e	41.00	46,464	10%	4646	1278	1278	6708	348	14,259
Rotor flow prevention device	set	1.00	9,680	5%	484	254	254	1334	73	2,399
Safety valve	piec e	2.00	18,392	10%	1839	506	506	2655	138	5,644
power cable	M	555.00	37,268	20%	7454	1118	1118	5870	280	15,839
Galvanized steel	M	168.00	29,524	5%	1476	775	775	4069	221	7,316
Galvanized angle steel	M	298.00	2,420	20%	484	73	73	381	18	1,029
Lamp	set	9.00	968	20%	194	29	29	152	7	411
Pressure gauge	piec e	2.00	242	5%	12	6	6	33	2	60
Pressure Transmitters	set	2.00	9,680	5%	484	254	254	1334	73	2,399
Intelligent differential pressure liquid level transmitter	set	1.00	4,840	5%	242	127	127	667	36	1,199
Electromagnetic Flowmeter	set	1.00	4,840	5%	242	127	127	667	36	1,199
Multi -function water pump control valve	piec e	2.00	24,200	5%	1210	635	635	3335	182	5,997
Meter pipeline	M	63.00	16,456	5%	823	432	432	2268	123	4,078
Instrumental valve	piec e	10.00	968	10%	97	27	27	140	7	297
Meter	piec e	22.00	242	10%	24	7	7	35	2	74
Instrument cable	M	2,300.00	22,264	5%	1113	584	584	3068	167	5,517
Fireproof	set	2.00	968	5%	48	25	25	133	7	240
fire extinguisher	piec e	1.00	242	5%	12	6	6	33	2	60
<b>2#Bubble Station</b>			0		0	0	0	0	0	-
Pressure bubble ratio hybrid device	set	2.00	168,960	5%	8448	4435	4435	23285	1267	41,870
valve	piec e	5.00	6,336	10%	634	174	174	915	48	1,944
power cable	M	2,340.00	171,600	20%	34320	5148	5148	27027	1287	72,930

Lamp	set	8.00		1,056	20%	211	32	32	166	8	449
Galvanized steel	M	170.00		31,680	5%	1584	832	832	4366	238	7,851
Galvanized angle steel	M	131.00		1,056	20%	211	32	32	166	8	449
Pressure gauge	piec e	2.00		264	5%	13	7	7	36	2	65
Intelligent pressure transmitter	set	2.00		10,560	5%	528	277	277	1455	79	2,617
Electric valve	set	4.00		84,480	10%	8448	2323	2323	12197	634	25,925
Fireproof	set	2.00		1,056	5%	53	28	28	146	8	262
fire extinguisher	piec e	1.00		264	5%	13	7	7	36	2	65
<b>Subtotal</b>				477,312		0	11933	11933	62647	3580	90,093
<b>2#circular water field</b>				0		0	0	0	0	0	-
Circulating pump	set	6.00		1,319,384	5%	65969	34634	34634	181828	9895	326,960
Wastewater sewage pump	set	2.00		31,944	5%	1597	839	839	4402	240	7,916
Electric gourd	set	2.00		11,132	20%	2226	334	334	1753	83	4,731
Electrical control cabinet	set	2.00		1,252,108	20%	250422	37563	37563	197207	9391	532,146
Low -voltage power distribution cabinet	set	5.00		453,024	20%	90605	13591	13591	71351	3398	192,535
PLC control cabinet	set	1.00		100,188	20%	20038	3006	3006	15780	751	42,580
Electric control equipment supporting facilities	set	1.00		150,040	20%	30008	4501	4501	23631	1125	63,767
Directors online detector,	set	1.00		184,421	5%	9221	4841	4841	25416	1383	45,702
PH online detector	set	1.00		12,522	5%	626	329	329	1726	94	3,103
ORP online detector	set	1.00		12,522	5%	626	329	329	1726	94	3,103
Pattern Cabinet	set	1.00		12,522	5%	626	329	329	1726	94	3,103
Industrial pressure gauge	set	1.00		12,522	5%	626	329	329	1726	94	3,103
Shock -resistant pressure gauge	piec e	8.00		484	5%	24	13	13	67	4	120
Pressure Transmitters	set	3.00		2,671	5%	134	70	70	368	20	662
Static pressure liquid level transmitter	set	1.00		19,856	5%	993	521	521	2736	149	4,921
Thermal resistance	piec e	3.00		6,678	5%	334	175	175	920	50	1,655
Electromagnetic Flowmeter	piec e	3.00		835	5%	42	22	22	115	6	207

Eight circuit flash signal alarm	set	1.00		2,683	5%	134	70	70	370	20	665
Single circuit Lights, the number of light cylinders shows to the police instrument	set	2.00		87,654	20%	17531	2630	2630	13806	657	37,253
The number of three circuits is sent to the alarm instrument	set	1.00		501	20%	100	15	15	79	4	213
The proportional volume of the number of light cylinders in the single circuit	set	1.00		5,456	20%	1091	164	164	859	41	2,319
Instrument box	set	1.00		2,504	20%	501	75	75	394	19	1,064
Work -shaped square counter -streaming glass mixed concrete structure Cold fans	set	3.00		3,361,380	5%	168069	88236	88236	463240	25210	832,992
Gravity -free valve filter	set	3.00		894,433	5%	44722	23479	23479	123264	6708	221,652
Fibrous bundle filter	set	2.00		626,103	5%	31305	16435	16435	86285	4696	155,156
Correspondence stool resistant agent plus drug device	set	1.00		60,971	5%	3049	1600	1600	8403	457	15,109
Chlorine dioxide device	set	1.00		66,784	5%	3339	1753	1753	9204	501	16,550
Gravity -free valve filter	set	3.00		894,433	10%	89443	24597	24597	129134	6708	274,479
Fibrous bundle filter	set	2.00		626,103	5%	31305	16435	16435	86285	4696	155,156
Correspondence stool resistant agent plus drug device	set	1.00		60,971	5%	3049	1600	1600	8403	457	15,109
Chlorine dioxide device	set	1.00		66,784	5%	3339	1753	1753	9204	501	16,550
Water supply drainage pipeline	M	3,381.00		617,100	5%	30855	16199	16199	85044	4628	152,925
Valve and pipes	piec e	24.00		66,792	10%	6679	1837	1837	9643	501	20,497
<b>Sewage improvement station</b>				0		0	0	0	0	0	-
Oil -containing sewage self -absorbing pump	set	8.00		3,564	5%	178	94	94	491	27	883
Initial rainwater self -suction pump	set	8.00		4,004	5%	200	105	105	552	30	992
1#artificial grille	piec e	4.00		66	20%	13	2	2	10	0	28
2#artificial grille	piec e	4.00		58	20%	12	2	2	9	0	25
Water supply drainage pipeline	M	670.00		228,096	20%	45619	6843	6843	35925	1711	96,941

valve	piec e	15.00	53,680	10%	5368	1476	1476	7750	403	16,473
Pressure gauge	piec e	18.00	2,684	5%	134	70	70	370	20	665
Pressure Transmitters	set	5.00	31,240	5%	1562	820	820	4305	234	7,742
Electromagnetic Flowmeter	set	5.00	26,840	5%	1342	705	705	3699	201	6,651
Radar liquid level meter	set	8.00	35,640	5%	1782	936	936	4912	267	8,832
Meter pipeline	M	597.00	188,892	5%	9445	4958	4958	26032	1417	46,810
Instrument cable	M	1,936.00	138,996	20%	27799	4170	4170	21892	1042	59,073
<b>2#Total substation</b>			0		0	0	0	0	0	-
Wet transformer	set	2.00	11,616,000	5%	580800	304920	304920	1600830	87120	2,878,590
Switchgear	set	30.00	7,260,000	5%	363000	190575	190575	1000519	54450	1,799,119
UPS power device	set	1.00	726,000	5%	36300	19058	19058	100052	5445	179,912
Bus bridge	set	4.00	1,936,000	5%	96800	50820	50820	266805	14520	479,765
Electrical bridge	M	2,420.00	162,624	5%	8131	4269	4269	22412	1220	40,300
Electrical cable	M	12,600.00	4,326,960	20%	865392	129809	129809	681496	32452	1,838,958
Lighting lamp	set	36.00	2,904	20%	581	87	87	457	22	1,234
Lightning protection grounding system	set	1.00	58,080	20%	11616	1742	1742	9148	436	24,684
fire alarm system	set	1.00	24,200	5%	1210	635	635	3335	182	5,997
Camera	set	10.00	29,040	20%	5808	871	871	4574	218	12,342
Talking Station/Discipline System	set	1.00	48,400	5%	2420	1271	1271	6670	363	11,994
Comprehensive wiring system	set	1.00	1,161,600	20%	232320	34848	34848	182952	8712	493,680
Water supply and drainage system	set	1.00	112,772	20%	22554	3383	3383	17762	846	47,928
valve	piec e	36.00	29,040	10%	2904	799	799	4193	218	8,912
air conditioner	set	20.00	48,400	20%	9680	1452	1452	7623	363	20,570
Fan	set	18.00	87,120	20%	17424	2614	2614	13721	653	37,026
Fireproof	set	20.00	968	20%	194	29	29	152	7	411
<b>2#Area substation</b>			0		0	0	0	0	0	-
Wet transformer	set	4.00	5,808,000	5%	290400	0	0	0	43560	333,960
10KV switch cabinet	set	36.00	5,227,200	5%	261360	0	0	0	39204	300,564
Switch cabinet mother bridge line	set	4.00	968,000	5%	48400	25410	25410	133403	7260	239,883
Inverter cabinet	set	5.00	242,000	5%	12100	6353	6353	33351	1815	59,971



Communication service cabinet	set	1.00	48,400	5%	2420	1271	1271	6670	363	11,994
Communication management cabinet	set	1.00	48,400	5%	2420	1271	1271	6670	363	11,994
Intelligent DC power supply	set	1.00	96,800	5%	4840	2541	2541	13340	726	23,988
Lighting cabinet	set	1.00	48,400	5%	2420	1271	1271	6670	363	11,994
UPS power device	set	1.00	726,000	5%	36300	19058	19058	100052	5445	179,912
Cable tray	M	480.00	32,428	20%	6486	973	973	5107	243	13,782
Electrical cable	M	11,975.00	4,112,548	20%	822510	123376	123376	647726	30844	1,747,833
Lighting lamp	set	60.00	4,840	20%	968	145	145	762	36	2,057
Lightning protection grounding system	set	1.00	58,080	20%	11616	1742	1742	9148	436	24,684
fire alarm system	set	1.00	24,200	5%	1210	635	635	3335	182	5,997
Camera	set	10.00	29,040	20%	5808	871	871	4574	218	12,342
Talking Station/Discipline System	set	1.00	48,400	5%	2420	1271	1271	6670	363	11,994
Comprehensive wiring system	set	1.00	96,800	20%	19360	2904	2904	15246	726	41,140
Water supply and drainage system	set	1.00	112,772	20%	22554	3383	3383	17762	846	47,928
air conditioner	set	20.00	96,800	20%	19360	2904	2904	15246	726	41,140
Fan	set	20.00	48,400	20%	9680	1452	1452	7623	363	20,570
Fireproof	set	20.00	968	20%	194	29	29	152	7	411
<b>Power supply and lighting in the factory area</b>			0		0	0	0	0	0	-
Electrical bridge	M	5,720.00	349,932	20%	69986	10498	10498	55114	2624	148,721
Electrical cable	M	13,750.00	278,300	20%	55660	8349	8349	43832	2087	118,278
Lighting lamp	set	198.00	87,120	20%	17424	2614	2614	13721	653	37,026
Lightning protection	set	1.10	9,680	20%	1936	290	290	1525	73	4,114
<b>Factory Telecom</b>			0		0	0	0	0	0	-
Fire alarm control cabinet	set	20.00	968,000	5%	48400	25410	25410	133403	7260	239,883
Electrical cable	M	56,400.00	1,255,496	20%	251099	37665	37665	197741	9416	533,586
TV monitoring cabinet	set	20.00	484,000	20%	96800	14520	14520	76230	3630	205,700
server	set	20.00	242,000	5%	12100	6353	6353	33351	1815	59,971
Display	set	1.00	1,452,000	20%	290400	43560	43560	228690	10890	617,100
Video workstation	set	1.00	242,000	20%	48400	7260	7260	38115	1815	102,850
IT cabinet	set	5.00	242,000	20%	48400	7260	7260	38115	1815	102,850
<b>Central control room</b>			0		0	0	0	0	0	-
UPS power device	set	1.00	618,816	5%	30941	16244	16244	85281	4641	153,350

Power distribution box	set	2.00	10,560	5%	528	277	277	1455	79	2,617
Web server	set	1.00	29,040	5%	1452	762	762	4002	218	7,196
Operating station host	set	40.00	231,264	5%	11563	6071	6071	31871	1734	57,310
monitor	set	40.00	42,240	5%	2112	1109	1109	5821	317	10,468
Operating table	set	40.00	89,232	20%	17846	2677	2677	14054	669	37,924
printer	set	2.00	10,560	20%	2112	317	317	1663	79	4,488
Engineer station	set	2.00	10,560	5%	528	277	277	1455	79	2,617
monitor	set	2.00	2,112	5%	106	55	55	291	16	523
History record workstation	set	1.00	5,280	5%	264	139	139	728	40	1,308
monitor	set	1.00	1,056	5%	53	28	28	146	8	262
SIS Operation Station	set	1.00	5,280	5%	264	139	139	728	40	1,308
monitor	set	1.00	1,056	5%	53	28	28	146	8	262
CCS Operation Station	set	1.00	5,280	5%	264	139	139	728	40	1,308
monitor	set	1.00	1,056	5%	53	28	28	146	8	262
Factory management network interface	set	1.00	26,400	5%	1320	693	693	3638	198	6,542
monitor	set	1.00	1,056	5%	53	28	28	146	8	262
DCS cabinet	set	28.00	158,400	10%	15840	4356	4356	22869	1188	48,609
Network switch	set	28.00	39,600	10%	3960	1089	1089	5717	297	12,152
Network cabinet	set	1.00	5,280	10%	528	145	145	762	40	1,620
Safety raster cabinet	set	10.00	52,800	10%	5280	1452	1452	7623	396	16,203
Safe fence	piece	50.00	52,800	10%	5280	1452	1452	7623	396	16,203
Isolator	set	20.00	21,120	10%	2112	581	581	3049	158	6,481
Surge protector	set	20.00	21,120	10%	2112	581	581	3049	158	6,481
telephone system	set	56.00	10,560	10%	1056	290	290	1525	79	3,241
Comprehensive wiring system	set	1.00	10,560	20%	2112	317	317	1663	79	4,488
Industrial TV monitoring system	set	1.00	10,560	10%	1056	290	290	1525	79	3,241
fire alarm system	set	1.00	10,560	5%	528	277	277	1455	79	2,617
Electricity and control cable	M	4,830.00	504,240	20%	100848	15127	15127	79418	3782	214,302
Sink cable bridge	M	70.00	5,280	20%	1056	158	158	832	40	2,244
Lighting lamp	set	243.00	30,096	20%	6019	903	903	4740	226	12,791
electric wire	M	5,790.00	23,760	20%	4752	713	713	3742	178	10,098
Galvanized steel	M	6,130.00	68,640	10%	6864	1888	1888	9910	515	21,064

Galvanized flat steel	M	770.00	9,504	10%	950	261	261	1372	71	2,917
<b>Subtotal</b>			2,125,728		0	53143	53143	279002	15943	401,231
2#cabinet			0		0	0	0	0	0	-
Circuit breaker	set	5.00	4,840	5%	242	127	127	667	36	1,199
UPS power device	set	1.00	567,248	5%	28362	14890	14890	78174	4254	140,571
Engineer station	set	1.00	4,840	5%	242	127	127	667	36	1,199
Operating station	set	3.00	14,520	5%	726	381	381	2001	109	3,598
power cable	M	1,155.00	88,572	20%	17714	2657	2657	13950	664	37,643
Cable tray	M	15.00	968	20%	194	29	29	152	7	411
Lighting distribution box	set	2.00	9,680	20%	1936	290	290	1525	73	4,114
control box	set	1.00	4,840	20%	968	145	145	762	36	2,057
Double -saving fluorescent light	set	73.00	8,228	20%	1646	247	247	1296	62	3,497
electric wire	M	1,955.00	7,260	20%	1452	218	218	1143	54	3,086
Combustible and toxic gas detector	piece	2.00	9,680	20%	1936	290	290	1525	73	4,114
fire alarm system	set	1.00	9,680	5%	484	254	254	1334	73	2,399
Industrial TV surveillance system	set	1.00	9,680	5%	484	254	254	1334	73	2,399
Comprehensive wiring system	set	1.00	9,680	20%	1936	290	290	1525	73	4,114
Polymer	set	1.00	14,520	10%	1452	399	399	2096	109	4,456
telephone system	set	1.00	9,680	5%	484	254	254	1334	73	2,399
Galvanized steel	M	796.00	968	5%	48	25	25	133	7	240
Galvanized angle steel	M	710.00	20,328	5%	1016	534	534	2801	152	5,038
bolt	pair	1,014.00	11,616	20%	2323	348	348	1830	87	4,937
Steel plate	ton	0.10	484	5%	24	13	13	67	4	120
Ground wire	M	1,650.00	18,876	20%	3775	566	566	2973	142	8,022
Fireproof	set	10.00	4,840	5%	242	127	127	667	36	1,199
fire extinguisher	set	5.00	1,210	5%	61	32	32	167	9	300
Cycling fire extinguisher	set	4.00	37,752	5%	1888	991	991	5203	283	9,355
<b>Subtotal</b>			869,990		0	21750	21750	114186	6525	164,211
<b>Central Laboratory (2)</b>			0		0	0	0	0	0	-
Octane	set	2.00	880,000	5%	44000	23100	23100	121275	6600	218,075
Hexisane valve machine	set	1.00	440,000	5%	22000	11550	11550	60638	3300	109,038
Distillation test	set	4.00	116,160	5%	5808	3049	3049	16008	871	28,786

Full automatic closed -mouth flash point measurement	set	1.00		38,720	5%	1936	1016	1016	5336	290	9,595
Petroleum product decomposition distillation determination device	set	1.00		19,360	5%	968	508	508	2668	145	4,798
Petroleum products movement viscosity measurement	set	2.00		31,944	5%	1597	839	839	4402	240	7,916
Copper corrosion measurement instruments of petroleum products	set	2.00		9,680	5%	484	254	254	1334	73	2,399
Organic determination device in industrial sulfur	set	1.00		19,360	5%	968	508	508	2668	145	4,798
Cold filter point measurement of petroleum products	set	1.00		11,132	5%	557	292	292	1534	83	2,759
Condensing some constant temperature water bath	set	1.00		9,680	20%	1936	290	290	1525	73	4,114
Demand division fuel oil oxidation stability measurement meter	set	1.00		15,488	5%	774	407	407	2134	116	3,838
Auto gasoline and aviation fuel actual glue determination device	set	1.00		12,100	5%	605	318	318	1668	91	2,999
Gasoline saturated vapor pressure device	set	1.00		15,488	5%	774	407	407	2134	116	3,838
Low -temperature constant warm water bath	set	1.00		9,680	5%	484	254	254	1334	73	2,399
LPG steam steam pressure device	set	1.00		14,520	5%	726	381	381	2001	109	3,598
LPG Vitality density measurement	set	1.00		14,520	5%	726	381	381	2001	109	3,598
Liquefied petroleum and bronze chip corrosion measurement instrument	set	1.00		14,520	5%	726	381	381	2001	109	3,598
Petroleum product color test device	set	1.00		2,420	5%	121	64	64	334	18	600
Electric furnace residual charcoal measurement	set	1.00		4,840	5%	242	127	127	667	36	1,199
Kang's Cyber Charcoal Testor	set	1.00		4,840	5%	242	127	127	667	36	1,199
Crude oil and liquid petroleum product density measurement instrument	set	2.00		5,808	5%	290	152	152	800	44	1,439

Crude oil water content measurement device	set	4.00	12,100	5%	605	318	318	1668	91	2,999
Electric heating wind temperature drying box	set	4.00	9,680	5%	484	254	254	1334	73	2,399
Electronic balance	set	4.00	968	5%	48	25	25	133	7	240
Haier refrigerator	set	1.00	4,840	5%	242	127	127	667	36	1,199
COD (CR) measurement	set	1.00	968	5%	48	25	25	133	7	240
COD elimination device	set	1.00	968	5%	48	25	25	133	7	240
Ammonia nitrogen determinations	set	1.00	968	5%	48	25	25	133	7	240
Box -type resistance furnace	set	4.00	4,840	5%	242	127	127	667	36	1,199
Asphalt acupuncture measurement meter	set	2.00	9,680	5%	484	254	254	1334	73	2,399
Asphalt softening point measurement	set	1.00	4,840	5%	242	127	127	667	36	1,199
Pilot	set	1.00	2,420	5%	121	64	64	334	18	600
Asphalt film oven	set	1.00	2,904	5%	145	76	76	400	22	720
Water bath	set	2.00	968	20%	194	29	29	152	7	411
Open flash point measurement	set	1.00	2,420	5%	121	64	64	334	18	600
Asphalt Platform viscosity measurement	set	1.00	7,260	5%	363	191	191	1001	54	1,799
Asphalt motion viscosity measurement	set	1.00	7,744	5%	387	203	203	1067	58	1,919
Crude oil and salt content measurement instrument	set	1.00	7,260	5%	363	191	191	1001	54	1,799
Electric furnace residual charcoal measurement	set	1.00	2,420	5%	121	64	64	334	18	600
Cromine (bromide index) measurement instrument	set	1.00	7,260	5%	363	191	191	1001	54	1,799
Alkaline nitrogen analyzer	set	1.00	9,680	5%	484	254	254	1334	73	2,399
BOD measurement	set	1.00	9,680	5%	484	254	254	1334	73	2,399
UV fluorescent sulfur measuring meter	set	1.00	20,328	5%	1016	534	534	2801	152	5,038
Gas Chromatograph	set	4.00	58,080	5%	2904	1525	1525	8004	436	14,393
Petroleum product Scet color measurement	set	1.00	14,520	5%	726	381	381	2001	109	3,598
TOTAL			538,595,341		51576231	12721977	12721977	66790381	4039465	147,850,032

CERTIFICATE

TOTAL TAX LIABILITY=147,850,032US DOLLARS

This is to certify that the assessment given is true and correct.

Signature:.....

Importer/Agent's Name & Designation:.....

For Official Use

Assessment rechecked and found correct and complete.

.....20-10-2020.....

Date

Signature:.....

Officer's Name & Rank:- GIDEON GLEY  
(SNR REV. OFFICER)

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