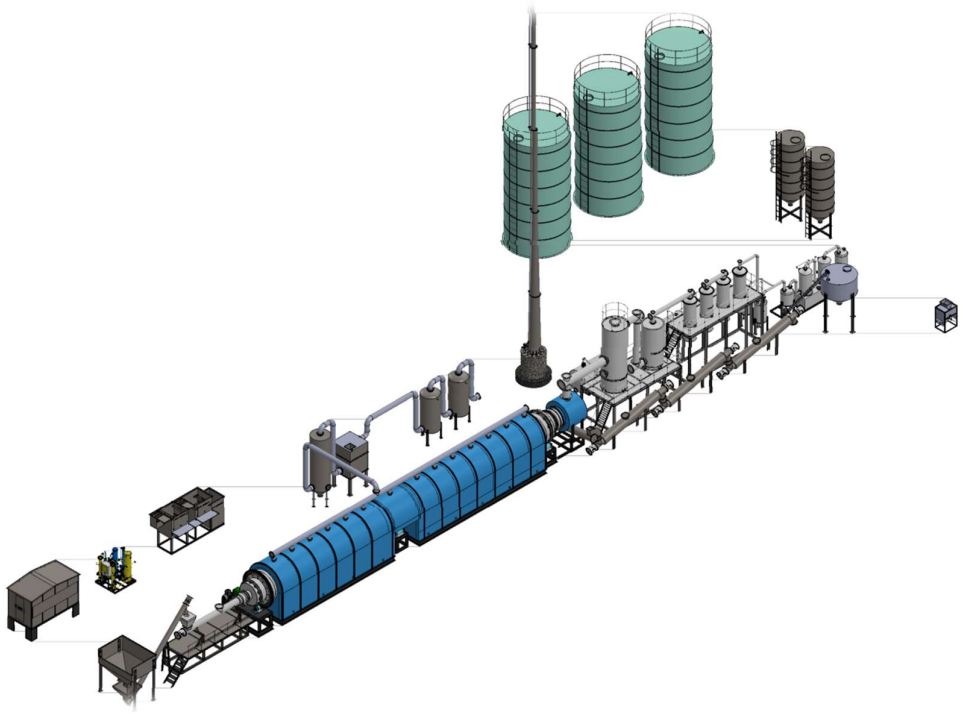
FABHIND®
Pvt. Ltd.

NEW GENERATION

FULLY CONTINUOUS PYROLYSIS EQUIPMENT

& TECHNICAL PROPOSAL

Model : Fab- Continuous 60 Tons Per Day



WASTE TIRE CHIPS CONTINUOUS PYROLYSIS PLANT –FAB-CONTI -60

- The Whole Project Is Composed Of the Whole Project Is Composed Of 60 TPD Continuous Waste Tire Pyrolysis Plant: 60 TPD Continuous Waste Tire Pyrolysis Plant
- **Raw Material**
  - Waste Tire Chips (20 Mash To 5 MM (Steel Free Wire)
- **Final Product**
  - Tire Pyrolysis Oil, Carbon Black Powder, Pyro Gas
- **Physical Parameters :**
  - Raw Material : Waste Tire Chips 5 T O 25 Mm (Steel Free Tire) Not Suitable For Shredded Tires,
  - Capacity : 60 Ton Per Day,
  - Status Of Slag : Carbon And Flash,,

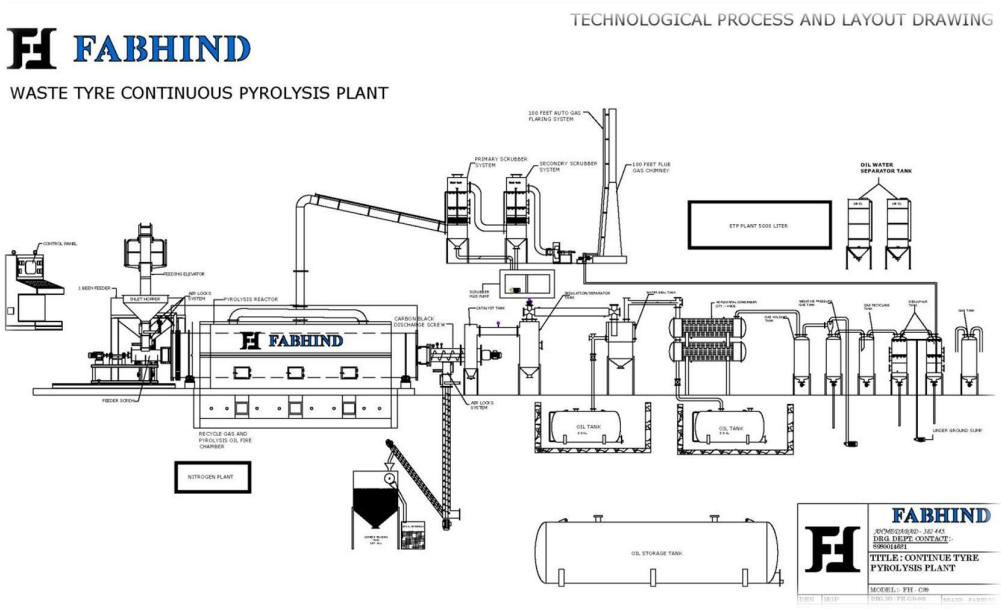
- Area : 3000 Square Meter,

- **Production :**
  - Tire Pyrolysis Oil : 40 % to 42 %,
  - Carbon Black Powder : 30 % to 33 %,
- **Consuming Data :**
  - Fuel : Tire Pyrolysis Oil , Uncondensed Gas
  - Daily Input Capacity : 60 Ton Per Day,
  - Cooling Water (Evaporating Loss) : 1000 Liter Day,
  - De-dusting Water (Consumption Loss) : 2000 Liter per day,

- **Overview :**

- Pyro = Heat. Lysis = Break Down. Pyrolysis Is Chemical Reaction. This Reaction Involves Molecular Breakdown Of Larger Molecules Into Smaller Molecules In Presence Of Heat. Pyrolysis Is Also Known As Thermal Cracking,, Thermolysis, Depolymerization, Etc. At Any Given Temperature The Molecule Is In Vibrating Stage. This Is Called Molecular Vibration. During Pyrolysis The Object's Molecules Are Subjected To Very High Temperatures Leading To Very High Molecular Vibrations. At These High Molecular Vibrations, Every Molecule In The Object Is Stretched And Shaken To Such An Extent That Molecules Starts Breaking Down Into Smaller Molecules. This Is Pyrolysis. Simplest Example Of Pyrolysis Is Food Cooking. When You Cook Food The Temperature Of Food Increases Leading To Higher Molecular Vibrations And Breakdown Of Larger Complex Molecules Into Smaller And Simple Molecules. After Cooking Larger Food Molecules Are Pyrolyzed Into Smaller In Simpler Molecules Which Are Easy To Digest. This Technology Is A Well-proven, Well-demonstrated Commercially Viable Technology, Which Is Currently Utilized In Industrial Plants Worldwide.
- We, FABHIND Manufacture The Continuous Waste Tire Recycling Project, Semi Continuous Plant And Batch Type Tire Pyrolysis Plant Equipment That Can Process The Waste Tires And Get The Crude Oil. At The Same Time It Also Can Get The Carbon Black, Flammable Gas And So On. It Can Not Only Solve The Problem Of The Environmental Pollution, But Also The Question Of The Shortage Of The Energy. Then It Can Help Us Create The Big Economic Profit.
- **Continuous Pyrolysis Machine Introduction:**
- According To The Continuous Pyrolysis Technology, The Equipment We Recommend In This Proposal Is The Fab Continuous Plant Updated Equipment Of Our Company. It's The New Developed Process, Including Continuous Feeding System, Continuous Rotating Pyrolysis System, Continuous Slagging System, Continuous Cooling System, Smell Removal System, Continuous Tail Gas Recycling System, Continuous Smoke Cleaning System As Well As Plc Automatic Control System, Etc. The Whole Pyrolysis Process Is Running Under A Completely Sealed Environment And On Very High Automatic Control Level, No Need Manual Operation For Feeding &Slugging. The Fully Automatic And Mechanical Process Makes Sure The Working Environment Is Totally Safe And Clean.

- **Technological Process and Lay out**



- **The Advantages Of The Fab Continuous Pyrolysis Machine**
- Our Reactor Has 360 Degree Outside Rotating System Which Allows It To Heat Proper Way So It Has Long Life,
- Spiral Flats Are Designed In To The Reactor Which Helps Running The Material By Its Inner Wall. The Raw Material Direct Contacted With The Heat Transfer Surface And Received Immediate Heat And Evenly Distributed.
- The Reactor And Feeder System Adopts Frequency Drive (VFD) To Adjust The Retention Time Of Raw Material In The Reactor According To The Pyrolysis. It Can Decompose In Minimum Time To Increase High Oil Yield.
- Reactor Can Be Loaded By Steel Wire Free Tire Chips And It Can Also Separate The Carbon Black From Hair Steel Wires At The Time Of Carbon Discharge. It Has Hair Steel In Wires It Can Be Collected By Hair Steel Magnet Separator Machine. Hence It Will Be Collected Directly To The Carbon Bags If It Doesn't Have Hair Steel In It.
- Gas & Oil Burner Can Be Used For Extra Flue Uncondensed Gas For Secondary Heating Process Of The Pyrolysis Reactor, Which Will Reduce Production Cost And Customer Revenue. The Flue Gas After Combustion Is Treated By Dual Wash Scrubber System As Per Environment Standards. Ii Is Using Evaporated Flue Gas For Heating Process Of Reactor, Where We Recycle Extra Heat For The Process.

- **Innovative Safety Measures For FAB Continuous Plant**

- The Invention Of "Special" Sealing Methods And Structures. Full Continuous Pyrolysis Process Is The Continuous Supply Of Raw Materials To The Reactor During The Pyrolysis Process Of The Reactor, And The Slugging And Prevention Of Pyrolysis Oil And Gas From Leaking Through The Feed Inlet And Slag Outlet. It Has Sealing Box At The Feeding And The Interlocking Sealing Device Of Discharging With Gas Kit And Gland Rope To Prevent Oil And Gas From Leaking During Production And Ensuring Safe Production.
- It Has Dual Air Lock Valve System To Control The Pressure Of Gas During The Process, Where It Will Help To Input Raw Material Continuously.
- Carbon Black Powder Will Be Unloaded By Its Carbon Unloading Screw With Help Of Dual Air Lock System, Where It Will Connected To Output Conveying System To The Cooling Ribbon Blender. By Using Of Ribbon Blender It Can Reduce The Total Process Time.
- It Has Dual Tail Gas Treatment System. The Non-condensable Flammable Gas Produced In The Process Of Generation Can Be Deodorized To Remove The Harmful Gas With Irritating Odor. After The Initial Purification, The Non-condensable Flammable Gas Heat The Reactor As A Supplementary Heat Source. The Generated Dusty Flue Gas Passes Through The Venture System Eliminate The Harmful Gas Components And Fumes In The Flue Gas Auto Ignition Flaring At 30 Meter Height To Reach The Environmental Protection Standard.
- The Condensing Equipment Line Has Pipe Condenser Type Of Design. The Uncondensed Oil And Gas Are Taken In The Pipe Where The Water Is Taken Away From The Pipe To Exchange Heat. It Has 45 Square Meter Of Coolant Area Of Water Pool Connected To Cooling Tower For Reducing Temperature Of Recycled Water. It Has Zero Discharge Of Water.
- Fab Continuous Plant Has Micro-negative Pressure Process. The Main Advantage Is That It Can Ensure That The Pyrolysis Oil And Gas Continue To Move To The Rear Of The Production System, Preventing The Condensed Gas From Flowing Back To The Reactor, Causing Secondary Heating And Re-cracking To Achieve Energy Conservation And Improve Oil Quality.
- **Pyrolysis Technology Safety Evaluation :**

- **Leakage Prevention**
- The Equipment Adopts A Fully Enclosed Structure, And All The Hazardous Media Is Operated In The Closed System. The Welds Of The Whole Equipment Including The Reactor Are 100% Non-destructive Testing Qualified. Besides, The Equipment Is Qualified For Airtight Testing Before Delivery To Ensure There Is No Leakage In All The Flange Connections, Threaded Connections And Welds. The Pipelines And Other Joints Installed On-site Shall Also Be Airtight Tested Before Being Put Into Use.

- **Real-time Monitoring Of Pressure And Temperature**
- Reactor Has Pressure Control And Temperature Control Sensors To Indicate Accurate Pressure And Temperature Of Reactor. Fab Continuous Plant Has Installed Plc System To Prevent Unnecessary Pressure & Temperature; It Also Monitors Operating Pressure And Temperature. When It Limits The Pressure And Temperature Plc Will Anomaly Observe red And Promptly Sound And Light The Alarm.

- **Detection of Flammable Gas**

- The Device Area Should Be Well Ventilated To Prevent The Explosive Limit When The Accidental Leakage Of Combustible Gas In The Device Area Is Too High. If Conditions Are Met, We Install Flammable Gas/vapor Detector In The Device Area So That The Flammable Gas Around The Device Area Can Be Monitored In Real Time To See If The Gas Concentration Is Too High.

- **Fire Fighting Systems**
  - The Device Area Should Be Well Ventilated To Prevent The Explosive Limit When The Accidental Leakage Of Combustible Gas In The Device Area Is Too High. If Conditions Are Met, We Install Flammable Gas/vapor Detector In The Device Area So That The Flammable Gas Around The Device Area Can Be Monitored In Real Time To See If The Gas Concentration Is Too High.

- Workers Must Use Explosion-proof Tools And Wear Qualified Labor Protection Products When Working. During The Maintenance Process Reactor Pipelines, The Internal Pressure Must Be Released First, And The Medium Should Be Replaced, Then It Could Be Opened After Qualified Testing. If You Need To Carry Out Hot Or Fire Work On The Equipment, You Must Implement Safety And Technical Measures Such As Cutting Off, Isolation, Replacement, Cleaning And Ventilation, And Follow The Procedures To Complete The Worksheet.

- **Operating Training & Maintenance :**
  - Suppliers Provide Theoretical Operating Training By Qualified Engineers At Our Facility. Fab Continuous Plant Also Provides Practical Training To Owner And Their Qualified Employees At Their Running Site Location. All Personnel Should Be Trained And Qualifiedly Tested Before Starting Job.
  - Supplier Provides Standard Operating Procedures Along With Its Plant
    The Parts Must Be Kept Away From The Equipment By 50 Meters With The Fire Or Welding Work. If It Is Impossible To Remove The Work Piece Or Equipment, Then The Entire Equipment Must Be Cleaned And Free From Any Oil And Flammable Materials First, And With Sufficient Fire Protection Measures And Labor Protection Conditions Can It Be Performed.

- **Backup Power & Water Supply :**
  During The Operation, The Device May Have Abnormal Temperature And Pressure Rise With Power Failure Or Water Stoppage. It Is Recommended That Users Have Power Backup (100Kva) And Water Sources.

Continuous pyrolysis process

Shredded Tires (5 Mm To 25 Mm)go Into The Continuous Waste Tire Pyrolysis Plant, Will Firstly Go Through A Multiple Pyrolysis Reactor System To Be Pyrolyzed Into Oil Gas. And Oil Gas Will Be Cooling Down To Liquid Oil Through The Cooling System. The Residues (Carbon Black) Will Be Pushed By Continuous Feeding Tires To The Carbon Black Discharge System For Discharge.

Main Features Of Fully Continuous Waste Tire Pyrolysis Plant

1. Environmental-friendly

2. Security
3. High Profit
4. High Oil Out Put

- **Fully Automatic With Low LaborCost**

Our Continuous Waste Tire Pyrolysis Plant Is Controlled By Plc System With Automatic Feeding And Discharge System, Which Only Need 1-2 Worker For Operating The Plc Or Computer Is Ok.

- **Fully Pyrolysis For High Oil Output**

- Our Continuous Waste Tire Pyrolysis Plant Adopts Multiple Reactor Design Which Can Make Fully Pyrolysis Of Waste Tires, Thus To Get High Oil Output.

- **Big Capacity**

Also Due To Continuous Feeding And Discharge System, And Unique Mutiple Reactor Design, Our Fully Automatic Continuous Waste Tire Pyrolysis Plant Can Process At Least 10 Tons Waste Tires Per Day, Up To 100 TPD

- **Internal Rotating for ContinuousOperation**
- For External Rotating System, You Have To Change The Sealing Material Every Three Days, Thus Cannot Achieve The Real Sense Of Continuous Process. But Our Continuous Waste Tire Pyrolysis Reactor Adopts Internal Rotating Method, Which No Need To Worry About The Sealing Of The External Rotating System.

- **Continuous Working Save Time and Energy**

- **Long Working Life**

During The Continuous Pyrolysis Process, Reactor Heating Is By Indirect Hot Air Heating, Which Will Not Damage Reactor So Much, Thus To Keep Long Usage Life Of The Reactors. And Since The Hard Steel Wire Already Removed From Waste Tires Before Pyrolysis Process, Thus No Damage For The Reactor.

Technical Data of Fully Continuous Waste Tire Pyrolysis Plant

No.	Item	Specifications	
1	Model	Tire Chips Continuous Plant	FAB-60
2	Capacity	Tons Per Day	60 TPD
3	Power	Total Power	150 HP
4	Working Type	Continuous	
5	Reactor Design	Continuous Reactor	
6	Rotating	Internal Rotating	
7	Cooling System	Recycled Waster Cooling	

8	Reactor Material	BQ 516-70 Grade	
9	Heating Method	Direct Hot Air Heating	
10	Heating Fuel	Fuel oil/gas	
11	Feedstock	Waste Tire Chip 5 to 25 MM	
12	Output	Fuel Oil, Carbon Black	

Application of Fully Continuous Waste Tire Pyrolysis Plant

- **Waste Tire Chips**
  - Fuel Oil
  - Carbon Black
  - Steel Wire

Application Of Fully Continuous Waste Tire Pyrolysis Plant

- For Our Continuous Waste Tire Pyrolysis Plant, The Applicable Raw Materials Can Be Any Kinds Of Waste Tires, Such As Bicycle Tires, Motorcycle Tires, Car Tires, Truck Tires, Otr Tires, Etc.
- Except The Steel Wire Extracted Out From Waste Tires In The First Stage Pretreatment Process, The Final Products From Waste Tire Pyrolysis Process Will Be Fuel Oil And Carbon Black. Application Of Fully Continuous Waste Tire Pyrolysis Plant

- **Use of Tire Oil**

Heavy oil Burner
- Road Contraction Machinery
- Cement Plant
- Brick Factory
- Chemicals Factory

- **Fuel Oil Application**

When The Whole Process Is Over, We Can Get End-products That Have A Wide Range Of Applications. For Example, The Pyrolysis Oil Can Be Widely Used As Fuel Oil In Industries Such As Steel And Iron And Boiler Factories, Ceramics, Power Or Chemical Industries Or Hotels, Restaurants Etc. Or Used For Generators To Get Electricity. The Carbon Black Can Be Used For Making Construction Bricks With Clay, Or Used As Fuel. The Steel Wire Can Be Sold Directly Or Recycled To Produce New Steel Products

- **Use Of Carbon Block**

- Tire Industries
- Rubber Industries
- Painting Ink
- Pigment Industries
- Chemicals Factory
- Active Carbon

- **High Capacity And Small Land Occupy Size**

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Our Fully Continuous Waste Plastics Pyrolysis Plant Can Process At Least 10 Tons Waste Plastics Per Day, Up To 100t/d. And Due To Integrated Design The Plant Has Small Land Occupy Size.

- **Fully Pyrolysis For High Oil Output**

The Accurate Calculation System Is Adopted to Make Fully Pyrolysis of Waste Plastics, And Three-stage Tubular Condensing System Can Ensure The Cooling Effect Highest, Thus To Get High Oil Output.

- **Fully Automatic With Low Labor Cost**

It Is Controlled By Plc System With Automatic Feeding And Discharge System, Which Only Need 1-2 Worker For Operating The Plc Or Computer Is Ok, Saving Labor Cost.

- **Continuous Operation For Saving Time And Fuel**

- For External Rotating System, You Have To Change The Sealing Material Every Three Days, Thus Cannot Achieve The Real Seal Of Continuous Process. But Our Continuous Waste Plastics Pyrolysis Reactor Adapts Internal Rotating Method, Which No Need To Worry About The Sealing Of The External Rotating System. In This Way, The Fully Continuous Waste Plastic Pyrolysis Plant Can Run For 24 Hours A Day Without A Stop And Needn't To Be Cooled Before The Second Batch, Which Not Only Saves Time, But Also Saves Fuels.

- **Long Working Life**

- During The Continuous Pyrolysis Process, Reactor Is Heated By Indirect Hot Air Heating, Which Will Not Damage Reactor So Much, Thus To Keep Long Usage Life Of The Reactors

- **Safe And Environmental-Friendly**

Sr No		Photo
1	**Pyrolysis Reactor** • Reactor Rotating System 1200 Kg per hour, • Inside Reactor Material Moving, • Reactor Size : 1.8 x 12 Miter • Direct heating System, • Sealing : Hard and Soft Sealing, • BQ Plate of 516-70 Grade • Reactor Insulated Cover by Cera wool	
2	**Fire Furnace Chamber** • Fire Door – 4 Nos, • Fire Screens : 4 Nos, • Gas & Oil Burner – 4 Nos, • Air Pressure Blower for Gas & Oil Burner,	

	• Pneumatic Valve Connected to Digital Panel Board for Automatic Temperature Control	
3	**Material Feeding Hopper** • Hopper Capacity • Bottom Belt Conveyer • Feeder VFD Drive	
3	**Material Feeding Systems** • Conveyor with Input & Output Hopper, • Electric Motor : 3 HP, • Gear Box SMRS Type D , Ratio : 13:1 , • 3 Ply 8 MM x 500 MM (Width	
4	**Material Feeding Screw** • Heavy Screw 450 x 1500 x 8 MM, • Reduction Gear Box NU500 • Electric Motor 5 HP, • Screw Gland Pusher • MS Fabricated Railing Stand	
5	**Material Loading Dual Airlock System** • Knife gate valve 12" 2 Nos (Numeric and Manually), • Temperature Meter Analogue & Digital Meter Sensors, Pressure Meter Analogue & Digital Meter Sensors	
6	**Carbon Output Screw** • Heavy Screw 440 x 1500 x 8 MM, • Reduction Gear Box NU-500 • Electric Motor 5 HP, • Screw Gland Pusher, • MS Fabricated Railing StandMS Fabricated Railing Stand	
7	**Carbon Unloading Dual Airlock System** • Knife gate valve 10 (Numeric and manually), • Temperature Meter Analogue & Digital Meter Sensors,	
8	**Carbon Removal Jacket Screw** • "U" Type Screw 12 " with Water Jacketed • Reduction Gear Box NU-500 • Electric Motor 5 HP, • Gland Pusher for Screw	
9	**Carbon Removal Pipe Screw** • Pipe Type Screw 8 "	

	• Electric Motor 3 HP,(Direct Pulley Drive) • Gland Pusher for Screw	
10	**Cycle- Carbon Storage** • Capacity 6 Liter • Temperature Meter Analogue & Digital Meter Sensors, • Capacity 10,000 Liter, • In Side Pipe Cooling Systems • Bottom Out Put Knife valve 8" (Manually)	
11	**Pipe Screw 8 Inch 8 Feet Length** • Pipe Screw 8 Feet long with Pulley Motor, • Screw Conveyor electric motor 2 HP,	
12	**Carbon Steel Removal System** • Drum Magnetic Separator, • Automatic Separation of Iron Impurities. • Electric Motor 2 HP, • Drum Consists of High Coercively Modern Anisotropic Permanent Magnets. • Completely Enclosed Design to Avoid Dusting and Pollution. • Bag Manually Feeding 50 KG	
13	**Heavy Oil Buffer Chamber** • Heavy Oil Tank, • MS Fabricated	
14	**Heavy Oil Collecting System** • Indicator Pipe with Pressure, temperature Meter and Safety Valve, • Dual Tank System Connected to Pipe &Instruments • Primary Tank with Heavy oil Collecting Tank – 500 Liter	
15	**Jacketed Coolant Pipe** • Water Jacketed 16 " Pipe • 15 Feet Long Jacketed Pipe • Attached Pressure and Temperature Sensor	
16	**Water Seal Tank** • Full Water Jacketed • Oil & Gas Output System • CI Casting Sight Glass	
17	**Cooling Tower** • Water Cooling Tower- 100 TR, • Electric Motor : 5 HP, • Perform rated Fiber Sheet,	

18	**Condensation System** • Condenser 3 Nos • Damnation 2500 x 800 • Cooling -Water Jacked	
19	**Oil tanks** • 6 KL – 2 Nos. • Bulk Oil Storage tank 100 KL – 1 OR 2 Nos. (Buyer's Scope)	
20	**Gas Controlling System** • Gas Pressure Controlling Tank – 3 Nos, • Negative Pressure Gas Tank – 1 Nos., • Gas Water seal Tank – 1Nos., • Odor Removal tank – 2 Nos.by Catalysis (Buyer's Scope) ,	
	Flue Gas Collecting System • Four Collecting Point, • Flue gas controlling dumper (Manually), • Scrubber Flue Gas Washing Primary System, • Dual Scrubber Tank for Secondary Wash with Carbon Filter Ceramic Rings System, • Flue Gas ID Fan Exhauster– 7.5 HP,	
	Industrial Self Supported Scrubber Chimney • Flue Gas Emission by 30 Meter Height Chimney, • 12 Meter Platform for Flue Gas Testing, • 30 Meter Platform with Safety Ladder	
	Pyro Gas Flaring System • 30 Meter Height Auto Gas Ignition System, • Auto Ignition Transformer, Silicon Cable &Dual Sparking Plug, • Attached to 30 meter Height Scrubber Chimney, • Automatic Extra Gas Firing, • Ventury Connected with Air Blower, • Ignition Wire Rope 3 MM 100 Feet,	
	Controlling Method (Programmed Logic Control - PLC) • Instruments Measurement of or Temperature and Pressure Control along with its safety Interlocks in case of increase of temperature and pressure of the reactor, • To Ensure positive pressure of reactor all the time, • Automatic / Manual (Optional) control system, • Reactor Long Duplex Thermocouple & Pressure Sensor • Revolving Light Hooter Alarm	

	• Double Teflon coated Shielded Temp Compensating Cable – 20 meter, • By Pass Unit with Flexible 3mtr SS Hose Pipe, • UPS (1 KVA) for improper A.C. Power supply and Earthing • Data SIM (Min 500 MB data plan) of Mobile operator prevalent in your area to be made available during installation • Data storage server facility	
	Item List	
	Total HP	**150 HP**
	D.G Set Required for Power Backup 100 kva	
	OPTIONAL MACHINE FOR PLANT	
	• ETP Plant • Nitrogen Plant • Tire Chips Plant • Pressure Indicate And Control Systems • Carbon Packing Machine • Pyro Oil Separator Tank • 100 Feet Chimney (Price Including) • Auto Ignition 100 Feet Chimney (Price Including) • Carbon Cooling Systems • D G Set As Per Requirement	

Technical Parameter

1. Physical and chemical parameters and technical reference.

Item	Technical data	Remark
Raw material: Tires	45%	
Status of Slag	Carbon black and ash	
Smoke Emission	Standard	
Capacity	0.85T/H	

Consuming data

Item	Technical data	Illustration
Fuel consumption	15-25kg/ton	According to waste gas and oil yield rate of the
Daily capacity	60 Tons	material, sometimes need this extra fuel, some times
Water consuming	Cooling water：2000 LPD	Evaporation loss
	Deducting water：1000 LPD	Consumption loss

Some other reference

Item	EQUIPMENT NAME	CAPACITY	QUANTITY
Section I Tire Pre-treatment Line (Price Is Not Including)	Waste Tire Recycling 25 M Rubber Powder Production Line	2.5 Ton/Hour	1
Section II Tire Pre-treatment Line	continuous Waste Tire Pyrolysis Plant	60 TPD	1
Total:	The Total Cost Of 60 TPD Continuous Waste Pyrolysis Plant Not Including Optional Auxiliaries Is		

Consuming data

SR No	ITEM	REFERANCE
1	Working Method	Fully Automatic, No Stop Even A Second.
2	Reactor Structure	New Generation, External Reactor Rotate. Material Move Inside Reactor
3	Reactor Size	1.5 M × 12 M According To Real Material
4	Reactor Electricity Consumption	70 KW

5	Pre Heating Method	Oil Heating Systems
6	Heating Resource	Oil and Recycled Waste Gas
7	Cooling Method	Recycling Water (Water Consumption: 10 kg/t Evaporation Loss)
8	Sealing	Both Hard And Soft Sealing. Mainly Use Soft Sealing.
9	Control Method	Intelligent, Variable Frequency Automatic Control +manual Operation: Also Can Be Made Full Plc System Without Any Manual Control According To Customer Requirement(Price Of This Need To Discuss
10	Area	Minimum Area 1000m²
11	Reactor Material	BQ 516-70 Grade (Stainless Steel is Available With Different Price If Required)
12	Reactor Life	4-7 Years According to Material

Accessories		
1	Control Cabinet	PLC Control Mode
2	Autonomous System	Including Chain Automation

Devices In The System Including:

Feeding System, Pyrolysis System, Heating System, Discharge System, Heat Exchange System, Oil Collecting System, Waste Gas Purification System, Smocking Cleaning System, Control System Etc.

Pyrolysis Equipment & Technology Safety Evaluation

1. Leakage prevention

The Equipment Adopts A Fully Enclosed Structure, And All The Hazardous Media Is Operated In The Closed System. The Welds Of The Whole Equipment Including The Reactor Are 100% Non-destructive Testing Qualified. Besides, The Equipment Is Qualified For Airtight Testing Before Delivery To Ensure There Is No Leakage In All The Flange Connections, Threaded Connections And Welds. The Pipelines And Other Joints Installed On-site Shall Also Be Airtight Tested Before Being Put Into Use.

2. Overpressure prevention

The Explosion-proof Membrane Device Is Installed in the System. The Membrane Must Be Setat the Rear of the Automatic Opening and Closing Valve, And The Reason Is To Press The Pneumatic Valve And Then Open The Explosion-proof Membrane Once The Pressure Is Over-pressed, While When The Pressure Is Reduced, It Is Automatically Closed. A Draft Tube Is Provided Behind The Membrane To Introduce Pressure Or Carried Material Into The Receiving Tubs (Slots Or Tubes) To Prevent Injury To The Personnel. The Purpose Of The Above Measures Is To Prevent Accidents Such As Accidental Pressure Relief Devices And Other Damages Caused By Automatic Explosion And Pressure Relief By Safety Valves And Explosion-proof Membranes (Bursting Membranes) In The Event Of Abnormal Pressure Rises In Tanks Due To Operational Errors.

3. Static-free

1. According To The Relevant Requirements Of The National Standard, Setting Anti-static Device Could Expel The Static Electricity
2. Accumulated In The Device Body In Time To Prevent Explosion Caused By Static Electricity. All Personnel Who Enter The Device
3. Should Wear Anti-static Overalls. It Is Recommended That The Customer Install An Anti-static Grounding Pole At The Periphery Of
4. The Device, And All The Personnel Entering The Device Area Should Touch The Static Electrostatic Grounding Column To
5. Eliminate Static Electricity From The Human Body.
6. Real-time Monitoring Of Pressure And Temperature
7. Pressure Gauges And Thermometers Are Installed In Critical Parts Of The Equipment Like Reactor, Etc. The Operators Take Regular
8. Spot Check To Monitor The Internal Pressure And Temperature Of The Equipment In Real Time. Once Abnormalities Are Detected,
9. Pressure And Temperature Reduction Measures Can Be Taken In Time To Intervene. To Improve The Temperature And Pressure
10. Monitoring Efficiency, It Is Recommended That Customers Install Plc (Or Dcs) Automatic Control System That Could
11. Automatically And Continuously Monitor The Operating Pressure And Temperature. When The Detection Of Pressure Or Temperature Anomaly Is Observed, It Will Promptly Sound And Light The Alarm, And If Further Rise, The Program Would Issue Commands Automatically For Shutdown And Decompression Operations.

5. Detection of Flammable Gas

The Device Area Should Be Well Ventilated To Prevent The Explosive Limit When The Accidental Leakage Of Combustible Gas In The Device Area Is Too High. If Conditions Are Met, It Is Recommended That The Customer Install A Flammable Gas Detector In The Device Area So That The Flammable Gas Around The Device Area Can Be Monitored In Real Time To See If The Gas Concentration Is Too High.

6. Mechanical And Electrical Protection

Install Protective Cover For Motor Belt, Reducer Gear, Chain And Other Transmission Parts. Mechanical Equipment Must Best Be Connected To Neutral (This Part Needs To Be Installed In The

Field); All Electrical Switches Should Be Equipped With Leakage Protection And Overheat Protection; Electrical Equipment Such As Motors And Switches Are All Explosion Proof.

7. Fire Fighting Facilities

The User Shall Be Equipped With Fire Extinguishers, Fire Hoses, And Other Fire Protection Facilities In The Installation Area According To The Provisions Of The Fire-related Regulations (This Part Requires The User To Equip Them On Site).

8. Backup Power and Water Supply

During The Operation, The Device May Have Abnormal Temperature And Pressure Rise With Power Failure Or Water Stoppage. It Is Recommended That Users Have Spare Power And Water Sources, Installing Dual Power Supply And Dual Water Source Systems.

9. Operation Protection And Management

When There Is A Dangerous Medium Inside The Equipment, Sparks Or Naked Flames Are Prohibited In The Surrounding Area.

Workers Must Use Explosion-proof Tools and Wear Qualified Labor Protection Products When Working. When Opening The Reaction Vessel, Container Or Pipeline, Etc., The Internal Pressure Must Be Released First, And The Medium Should Be Replaced, Then It Could Be Opened After Qualified Testing. If You Need To Carry Out Hot Or Fire Work On The Equipment, You Must Implement Safety And Technical Measures Such As Cutting Off, Isolation, Replacement, Cleaning And Ventilation, And Follow The Procedures To Complete The Worksheet. Apply For An Approval System And Gradually Implement Safety Management Measures Such As Approval, Guardianship, Clean-up, And Acceptance.

Special Note: The Parts Must Be Kept Away From The Equipment By 50 Meters With The Fire Or Welding Work. If It Is Impossible To Remove The Work Piece Or Equipment, Then The Entire Equipment Must Be Cleaned And Free From Any Oil And Flammable Materials First, And With Sufficient Fire Protection Measures And Labor Protection Conditions Can It Be Performed.

10. Personnel Training

Before The Device Is Put Into Use, Complete Operating Procedures Should Be Prepared In Written Form, And All Personnel Should Be Trained And Qualifiedly Tested Before Starting The Job. According To The Procedures, The Work Permit Application Approval System Shall Be Completed, And Safety Management Measures Such As Approval, Guardianship, Clean-up And

Waste Tire Recycling 10m Rubber Power Production Line (Price Not Including)

SR No	Description	Specification	Quantity	Remarks
1	Waste Tire Ring Cutter Machine	L1.85mxW1.1mxH1.6m Capacity: 40 tires/hour Weight:0.5T	1 set	

		Power: 5 HP		
2	Waste Tire Strip Cutter Machine	L1.2mxW0.8mxH1.6m Capacity:1.5 Ton/hour Weight:0.85T Power:7.5 HP	1 set	
3	Waste Tire Steel Remover Machine	Power: 5 HP	1 set	
4	Waste Tire Cutter Side Wall Cutter	Power: 5 HP	1 set	

Remarks

1. Price Term: Fob Ahmadabad Price

2. Payment Term: (30%+70%)

3. Delivery Time: About 65 Days

4. Warranty: 1 Year Since The Whole Line Finished Installation And Put Into Normal Operation, Except Wearing Parts And Man-made Damage.

5. Installation And Training: After Machine Delivery, We Will Send 2-3 Engineers To Customer's Site For Machine Installation, Commissioning And Operation Training. During This Time, Customer Should Pay Salary Per Day For Per Engineer And Take Charge Of Their Round-trip Tickets And Accommodation.

1. Terms and condition as per **Annexure I**

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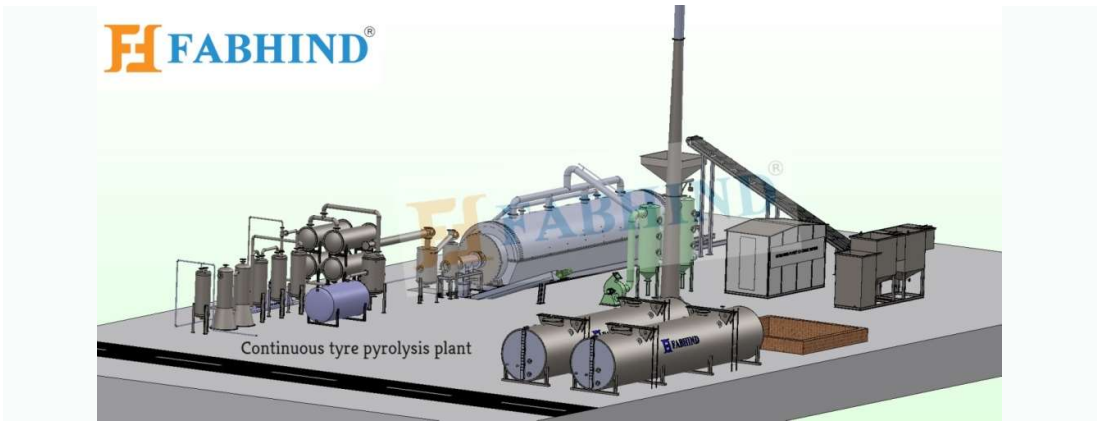
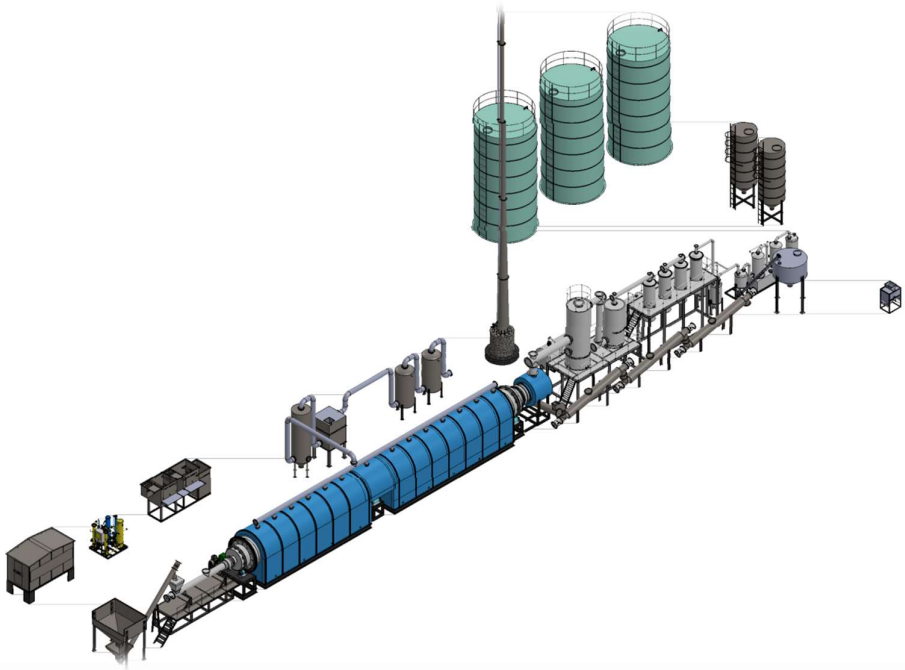


Other Details of Plant

FAB-60 CONTINUOUS WASTE TYRE PYROLYSIS PLANT

With Carbon Cooling Systems

Model :- FAB-60 CONTINUOUS With Drum Cooling Systems



Plot No. 16, Khodiyar Estate, Near Shakriba Estate, Phase - IV, G.I.D.C., Vatva, Ahmedabad - 382445
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Size 24000 X 2000 X 16 MM BQ Plate

Raw Material Required Below 25 MM Tyre Chips

No.	Item	Specifications	
1	Model	Tire Chips Continuous Plant	FAB-60
2	Capacity	Tons Per Day	60 TPD
3	Power	Total Power	150 HP
4	Working Type	Continuous	
5	Reactor Design	Continuous Reactor	
6	Rotating	Internal Rotating	
7	Cooling System	Recycled Waster Cooling	
8	Reactor Material	BQ 516-70 Grade	
9	Heating Method	Direct Hot Air Heating	
10	Heating Fuel	Fuel oil/gas	
11	Feedstock	Waste Tire Chip 5 to 25 MM	
12	Output	Fuel Oil, Carbon Black	

Reactor Size :- 24000 Meter (12000 x 2000 x 2 Pieces)

- Capacity 50 To 60 Tons Per Day
- Continuous Feeding systems
- Pyrolysis Oil Out Put 38 To 42 %
- Carbon Out Put 30 To 35 %
- Steel Out Put 3 % to 5 %
- Shell 3 Ring for Roller long Life

Waste Tyre Pyrolysis Plant - FAB-60 CONTINUOUS with Carbon Cooling Drum

- Equipment Type : Batch Type Plant Model - FAB-60 CONT..-With Drum
- Special Model For Carbon Cooling Systems
- Raw Material : Waste Tyre Chips Below 25 MM With Out Steel.
- Rotation : Structural Form Horizontal Rotation
- Capacity : 50 to 60 Tons Par Day
- Oil Yield : 38 To 42 %
- Steel Scrap : 3 to 4 %
- Carbon : 30 to 35 %
- Operating Pressure : 0.05-0.2 kg/ bar Auto Control
- Reactor Material : B.Q Plate Sa 516 (Grade 70)
- Rotation Speed Of Reactor: 0.4 turn/min®
- Total Power : 150 HP
- Mode Of Cooling : Circular

- Cooling Area Of Condenser : 72 Sq.mt
- Transmission Mode : DOL/VFD Direct Drive Motor
- Noise Db (A) : ≤85
- Size Of Reactor (D*l) : 24 x 1.8 Meter (Only Shell)
- Delivery Time : Within 3 to 4 Weeks
- Fuel : Tyre Paralysis Oil , Uncondensed Gas
- Cooling Water (Evaporating Loss): 1000 Litter Day
- De-dusting Water (Consumption Loss): 2000 Litter per day
- Installation Time: 25-35 Days
- Require : 10,000 Sq.Yad Minimum Required (Without Stock)

FAB-60 CONTINUOUS With Drum Technical Details

MAIN REACTOR

- Reactor Size :- 24000 MM X 2000 X 16 MM
- Descent :- One Side Feeding and Back Side Carbon and Oil Out put systems
- Shell Plate :- BQ Plate Grade 516:70
- Front Door Size :- Door Size 2000 MM
- Gas Out Put Pipe :- 1000 MM X With Marching Pipe
- Door Lifting Hoist Stand :- C Type Heavy Hoist Stand For Easy Operating
- Reactor Roller :- Make With Special Material Solid Bar With Harding
- Heating Systems :- 8 Nos Gas Burner and Oil Fire Systems
- Draft Out Put Systems :- 4 Nos 12 Inch Pipe connection
- Carbon :- Back Side 18 Inch Carbon Out Put Systems
- Carbon Cooling Systems :- Drum Cooling Systems
- Carbon Out Put Gland Pusher :- 450 MM And Machining Pipe 450 MM (18 Inch)

REACTOR ROLLER

- Roller : - Heavy with Heat protect -R-20 - 6 Nos Roller With Water Tub
- Shaft : Machine In CNC Auto Machine With Grinding
- Bearing : Heavy Quality
- Grease : - High Temp Grease With Feeling Grease Cup
- Relapses : - Easy Replace

REACTOR COVER

- Main I Beam :- 300 MM
- Extra Height :- Reactor Shell Long Life
- Reactor Cover :- Totally Close Cover Box Size
- Insulation :- Cera Wool 25 MM Three Layer –High Temperature (HTZ)
- Cera Wool Locking :- 6 and 8 MM Rod Weld For Long Life

REACTOR COOLING SYSTEMS

- Duck Line :- Four Out Put And Input In Reactor Direct Connect To Main Chimney

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CARBON COOLING SYSTEMS

- Carbon Drum :- Size 7500 x 2400 Side Cone Tyre Capacity 5 Tons
- Drum RPM :- Law RPM -Rotating By Gear Motor 5 HP
- In Put Carbon :- Up to 150 to 200 Temperature
- Out Put Material :- Screw With Gear Motor
- Out Put Material :- Screw With Gear Motor

ELECTRIC MOTOR

- Electric Motor :- 25 HP 1440 RPM Electric Motor With VFD Drive

HELICALS GEAR BOX

- Gear Box :- Model 300 -Fabhind Brand Standard Make
- Ratio :- Ratio 50:1
- Pulley :- Pulley 16 Inch C Type 4 Nos Belt

INSULATION TANK

- Tank Size :- 1750 H X 1000 D X 5 MM T MS Material Bottom Conical
- Heavy Oil Tank :- Bottom Heavy Oil Tank 800 X 1500 X 5 MM
- Insulation :- Cera Wool With GI Plate
- Out Put :- Heavy Oil Out Put Manol 8 Inch With 2Inch Temp Valve
- Pipe Line :- Heavy Oil Pipe Line 3 Inch With Valve For Heavy Carbon Oil

PRE-COOLANT PIPE

- Coolant Pipe :- 15 Feet X 12 Inch Pipe
- Water Jacket :- Out Side 18 Inch Pipe
- Cleaning Systems :- Two Side Manol

WATER SEAL TANK

- Tank Size :- 1800 X 1200 MM Bottom Conical
- Water Jacket :- Out Side Shell 1250 X 1450 Water Coolant
- Out Put :- 4 Inch Pipe Connection For 1 St Oil Out Put
- Bottom Out Put :- Heavy Oil Out Put Manol 6 Inch
- Water Level :- Input And Out Put 1 Inch With Valve

MAIN CONDENSER

- Main Condenser Tank :- 5 MM 3000 x 3000 x 6000 MM
- Bottom Height :- 1800 MM
- Main Pipe :- 10-8-6 Inch Dia And 20 Feet
- RCC Water Tank Required :-Under Gound RCC Tank 1 Lac Liter Capacity

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OIL TANK :-

- Heavy Oil Tank Size :- 6 KL
- Light Oil Tank Size :- 6 KL
- Oil Level Pipe :- Glass Pipe With Calibration Chart
- Bottom Out Put :- 8 Inch With 1.5 Inch Ball Valve And Top 12 Inch Melon
- Oil In Put :- 4 Inch
- Side Glass :- 4 Inch CI Heavy Model Side Glass 2 Nos

GAS TANK

- Tank Size :- OD 800 MM
- Water Level :- In Side Water Level Systems
- Safety Valve :- 2 Inch 0.5 KG (Brass)

SCRUBBER PIPE

- 1 St Scrubber Pipe :- Reactor Top C Pipe 12 Inch
- 2 Nd Scrubber Pipe :- Pipe With Water Spay Pipe Systems 12 Inch
- Scrubber Tank :- 2 Nos
- Tank Size :- OD 800 MM X 5 MM
- Scrubber Layer :- In Side Three Layer With Ceramic Pipe
- Water In Put :- Spay Type

CHIMNEY 100 FEET WITH AUTO INGNITION SYSTEMS

(Self Supported)

- Conical Segment
- Straight Segment 1
- Straight Segment 2
- Bottom Base Plate
- Ladder
- Platform
- Gas Pipe Line
- Ignition Auto Fire Systems
- Gas Venture System
- Gas Blower
- Foundation Bolt
- Inspection Door And Canopy
- Template

DRAFT CHIMNEY BLOWER

- Blower :- Centrifugal Type
- In Put :- 12 Inch
- Out Put :- 12 Inch Squire
- Drive :- V Belt Drive B 3 Grove
- RPM :- 900 RPM
- Electric Motor :- 7.5 HP

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WIRE ROPE HOIST

- Drum Size :- 16 Inch X 8 Inch
- Switch :- Reverse Forward Switch
- Reduction Gear Motor :- 6 Inch 30:1 Motor 5 HP
- Wire Rope :- 10 MM 60 Feet

CONTROL PANEL

- Motor Control :- All Motor Relay And MCB Pus Baton Switch
- Tamp Miter :- Plant Tamp Digital Meter
- Hotter :- Controller Hotter Systems

FABHIND PANEL WITH BYPASS SYSTEM

- Android App Per Machine
- PLC Based Panel.
- Reactor Long Thermocouple & Pressure Sensor.
- Revolving Light Hooter Alarm.
- Separator Duplex Thermocouple and Pressure Sensor.

SUBMERSIBLE PUMP

- Pump :- 5 HP
- Out Put :- 2 Inch

OIL GEAR PUMP

- Pump:- Gear Pump
- Electric Motor :- 3 HP
- In - out put :- 1.5 Inch

MONO BLOCK PUMP

- Pump :- Mono Block Pump
- Electric Motor :- 3 HP
- In - Out Put :- 2 Inch

BURNER PRESSER BLOWER

- Blower :- Centrifugal Type
- Input :- 6 Inch
- Out Put :- 4 Inch Squire
- Drive :- Direct Drive
- RPM :- 2880 RPM
- Electric Motor :- 5 HP
- Volt :- 3 Phase 415 Volt

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GAS BURNER

- Gas Burner :- 4 Nos In Reactor Fire Unit With Easy Cleaning Systems
- Extra Gas Fire Burner :- 2 Nos In Fire Space With 0.5 HP Blower

COOLING TOWER

- Cooling Tower :- 110 TR
- Body :- Fiber
- Electric Motor :- 3 HP

FIRE BRICK & CAS-TABLE CEMENT

- Fire Brick :- 1550 Nos For Reactor Fire Unit
- Cas-Table :- 15 + 15 Bag For Reactor Fire Unit

HARDWARE & FITTING

- Hardware-Fitting :- As Per Annexure 1

LDO Burner (Fire Unit) :-

- Main Burner :- Cast Iron Burner 8 Nos
- Presser Blower :- Centrifugal Presser Blower
- Pipe Line: - MS And Hose Pipe Fitting
- Fitting Arrangement :- In Fire Unit Assembly
- Motor HP 5 HP
- LDO Tank 1000 Litter With Valve Fitting

LDO BURNER PRE FIRE UNIT :-

- Main Burner :- Cast Iron Burner 8 Nos
- Pipe Line: - MS And Hose Pipe Fitting
- Fitting Arrangement :- IN Fire Unit Assembly
- Commercial LPG Gas Bottle (Party Scope)
- Coolant Condenser :- In Built Water Tank 10,8 and 6 Inch Pipe 3 x 3 6 Meter
- Back Up Condenser :- Extra 2 Nos Back Up Condenser For Recover Extra Oil
- Reactor Cooling Systems :- 5 HP x 2 Nos Vacuum Blower With Four Out Put Header
- Reactor To Insulation Tank :- 18 Inch Gland Push / Measuring Pipe / Machining Pipe
- Scrubber Systems :- 3 Nos Scrubber Tank 1250 x 6000 With VT Scrubber 16 Inch Pipe
- Reactor Cover Cera Wool :- Three Heavy Layer With SS Supporting Rod
- Pyro Gas Burner :- Easy To Clean Systems

REQUIRED SPARE ITEM :-

- Reactor Roller :- 2 Nos
- Pressure Gauge :- 4 Nos

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- Temp. Gauge :- 4 Nos
- Thermo Couple :- 4 Nos
- Counter Pinion :- 1 Nos
- Safety Valve 0.5 KG :- 2 Nos
- Gland Rope 25 MM :- 50 KG