



ADVANCED SOLUTIONS FOR THE
REVOLUTIONIZING THE
EFFICIENCY AND SUSTAINABILITY
FOR AGRO BASED RAW MATERIAL PULP MILLS

Presentation by

RAJ KUMAR
Vice President
Projects

Group Companies



Dr. Desarda Group Of Industries















Backbone of Parason



Behind the appreciation and recognition, is our team of leaders



Dr. C.P. Desarda - Founder

A Mastermind and leader in Metallurgy Engineering, he is a Doctorate in Metallurgical Engineering with specialization in Chrome steel alloys from Brno University Czech Republic. Awarded by the President of India for National Productivity Award and was the first to introduce martensitic stainless steel in pulp and paper industry.



Dr. Shekhar Desarda

Dr. Shekhar Desarda has many facets to his personality. He is the Chairman cum Managing Director of Desarda Group, Executive Member of Indian Pulp and Paper Technical Institute (IPPTA) Saharanpur, India with many technical papers to his credit. He is the man behind the transformation of a moderately performing company into a world-class organization. After consolidating its position as a leading player in the pulp and paper industry sectors domestically, PARASON, the flagship company of the group has its presence in 60 countries across the globe as a valuable supplier of Machinery and spares for Stock Preparation of Pulp and Paper Industry.

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Kishor S. Desarda - Director

Mr. Kishor Desarda is a very versatile personality and a charismatic leader, he is a crucial factor for the development of Parason. His work encompasses enabling people with the latest technology trends, and his people-centric approach makes him more agile in decision-making for the management. He is an Information Technology (IT) engineer and completed his Postgraduation program with Stanford SEED.



Madhure S. Desarda - Director

Graduated in Mechanical Engineering from Arizona State University, USA and completed his Masters in Business from W. P. Carey School of Business – Arizona, USA. He started the Kaizen Department that is responsible for operations and continuous improvements in the organization and he has been proactively working in the area of Refining and Screening for the last 2 years. His expertise in finite element analysis and computational fluid dynamics is playing a key role in developing new solutions for pulp and paper industry.



Utkarsh S. Desarda - Director

Bachelors of Science in Material Science from Ira A Fulton school of engineering and Masters in Business Management from W P Carey School of Business at Arizona State University, Phoenix, AZ, USA

Senior Leaders



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L.N. Sharma - CTO

Design expert working in the capacity of CTO. Team leader for the last 40 years in the design of various equipment, serving as the backbone of PARASON. Filed 5 patents and, 6 design applications, of which 4 design patent applications were granted.



Amol Thakur - COO & R & D Chief

Metallurgist working in the capacity of COO & R&D Chief. Expert in refining technologies and metallurgy, associated with Parason for the last 30 years. Filed 3 patents and 4 design applications, with 3 design patent applications granted.



Sunil Purohit-Vice President Process & Application Engineering

Vast Experience of + 35 years in Pulp & Paper Industry in Paper making & Tissue.



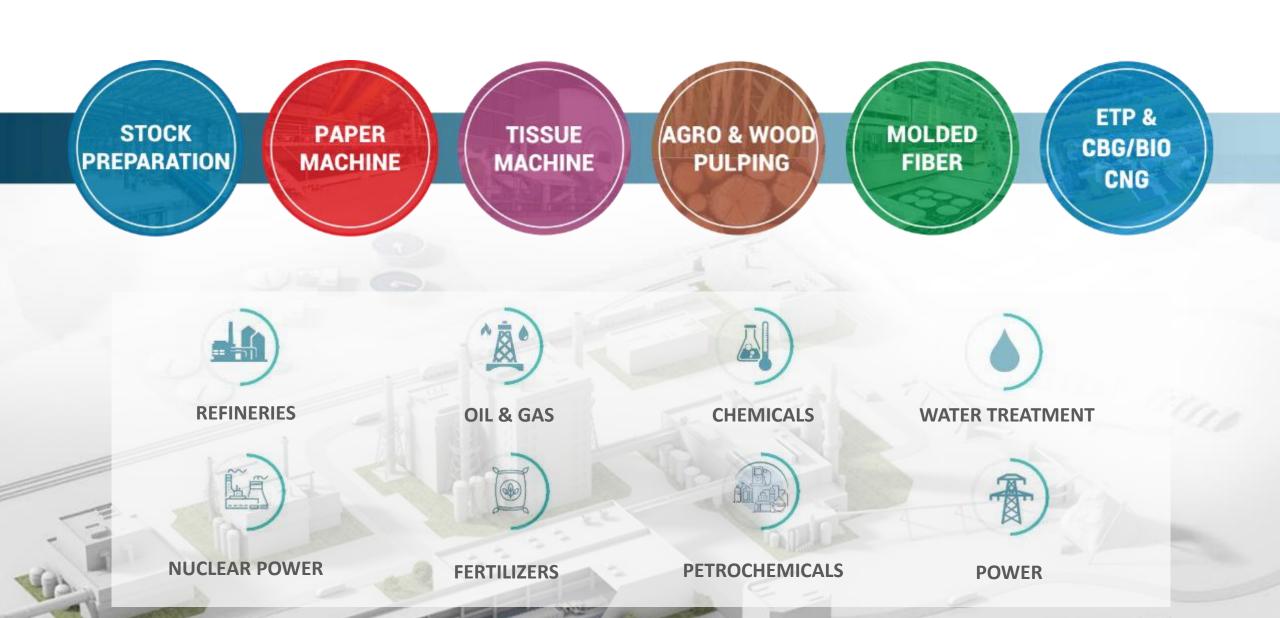
Raj Kumar - Vice President Projects

Chemical Engineer with 30 years of rich experience in Agro, Wood Pulping, ETP & BioCNG. Experience of ECF & TCF Bleaching of Wheat Straw pulpling.

Key Industries



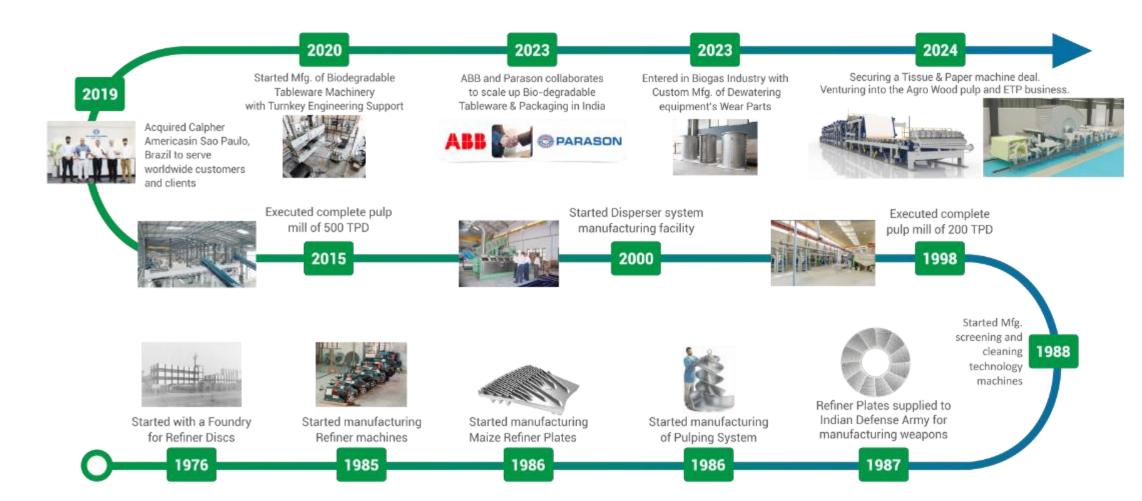
Providing highly advanced and innovative technology to diverse industries



Rewarding Journey so far

PARASON

From inception to execution



Certificates

Recognized for developing remarkable and innovative projects



Covernment of India / Neor ereser Ministry of Commerce and Industry / वाणिकः और उद्योग मञ्जलक Department of Commerce / वातिक्य विभाव Directorate General of Foreign Tende / विदेश व्यापार महानिदेशालय मान्वता प्रमाणपत्र Certificate of Recognition दो सितारा निर्यात हाउस Two Star Export house Quel PARASON MACHINERY(INDIA) PRIVATE LIMITED (कई ई सी 0092051338 और अपनद के AABCP5078K) की विधः जयह नीति , 2021 के प्रवस्थती के अनुसर ही जिन्नता निर्योग सक का तर प्रयस् किया जाता है । यह इसाय प्रव व्यक्रिया पुस्तक(2003) में दी गयी नहीं के निहित्त 3 वर्षों की अद्यक्षि के लिए दिनाक 18/09/2003 में 31/03/2008 तक देश होगा । MOS PARASON MACHINERY (INDIA) PRIVATE LIMITED (IEC 099265139) and Income Dec PAN AARCP507NK | are hereby accorded the eases of Live Surr Expert house in accordance with the provisions of the Foreign Trade Policy, M23. This Confidence is valid for a period of 5 years office from 1809/2023 to 3100/2028 subject to the conditions proscribed in Hand. Back of Procedures (2022) चरेल /Dane: 00/10/2023 POPE ATMEST MAHARASHTRA (Hight/File No.): MUMSTATAPPLY00000765AM24 R.K. MISHRA This is religible profition, and it combines on half by sciencing the QR Code or by 100Ps on the HEPT Wilhord districtive on appropriate Additional DGCT

Parason Recognized Certificate of In-house R&D Parason Recognized "Export House" by Govt of India

PARASON

Certificates



Recognized for developing remarkable and innovative projects



Parason Recognized ISO 9001:2015 for QMS by TUV Nord



Parason Machinery is CE Certified By TUV Nord for Export Excellence.

Certificates





ISO 9001:2015



ASME 'U'STAMP



ASME 'U2' STAMP



ASME 'S' STAMP



ASME 'R' STAMP















Scanning Electron Microscope





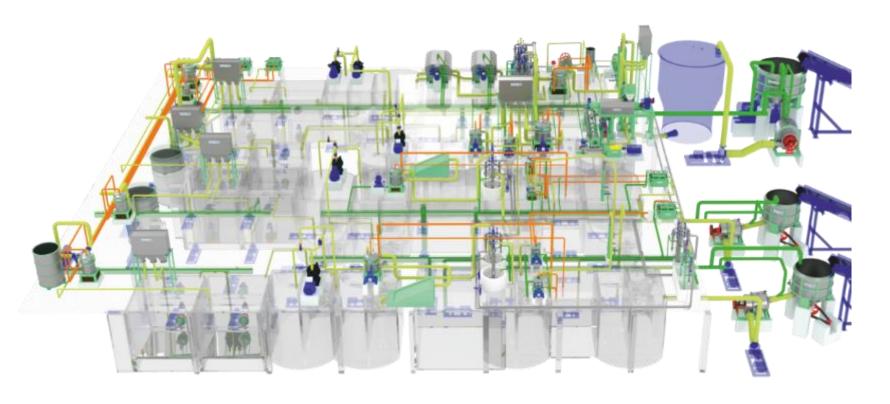
Integrated Solution Provider



Providing best customized solution for every requirement

We manufacture all equipment's for Pulp to Paper Machines for below mills

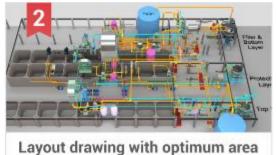
- Writing and Printing Mills
- Tissue Paper Mills
- Kraft Paper Mills
- News Print Paper Mills
- Duplex Board Paper Mils
- Security Paper
- Bank Note Paper



Engineering services for projects















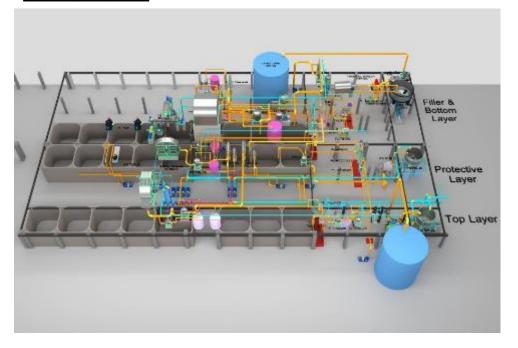




Project execution with complete 3D Engineering:



Plant 3-D & piping layout

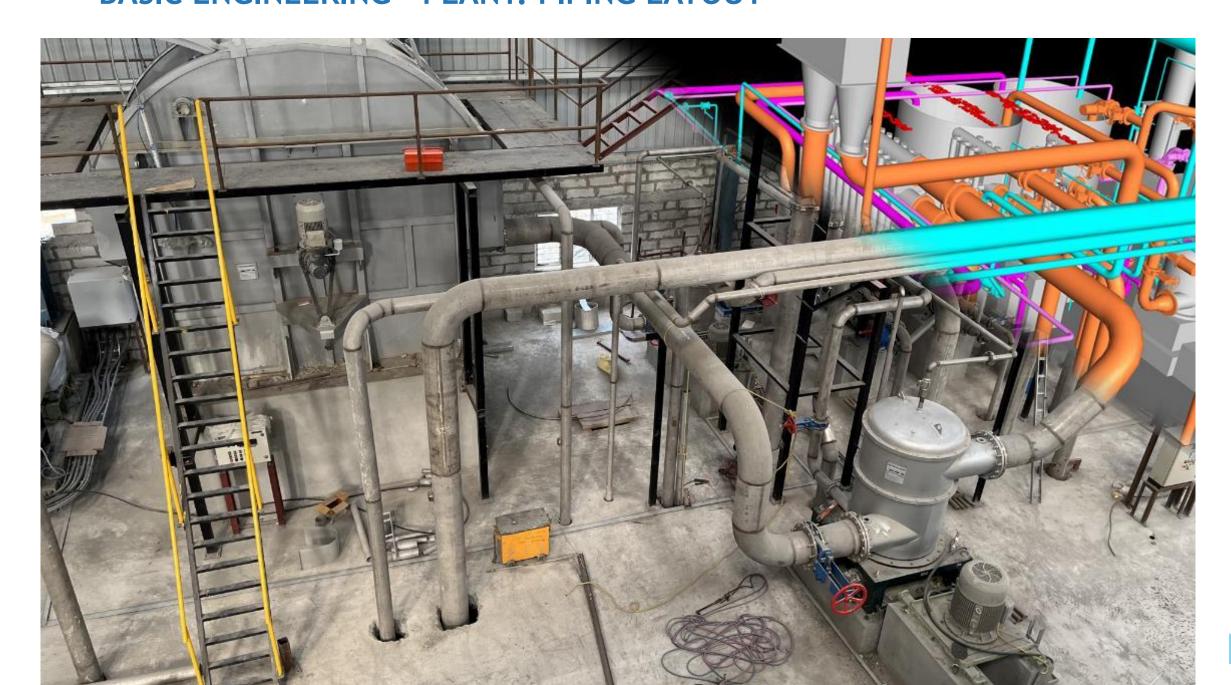


After installation



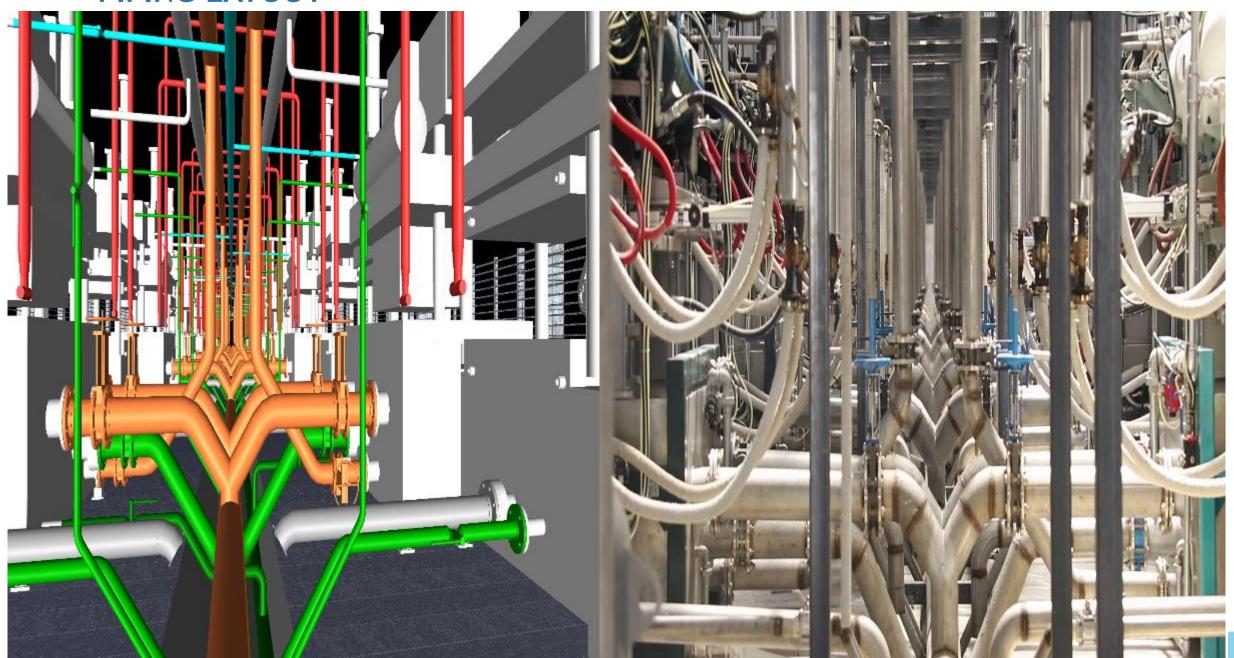
ENGINEERING SERVICES: BASIC ENGINEERING - PLANT: PIPING LAYOUT





ENGINEERING SERVICES: BASIC ENGINEERING - PLANT: PIPING LAYOUT





Parason Head office & Regional Offices in INDIA





Corporate Office

Aurangabad, Maharashtra

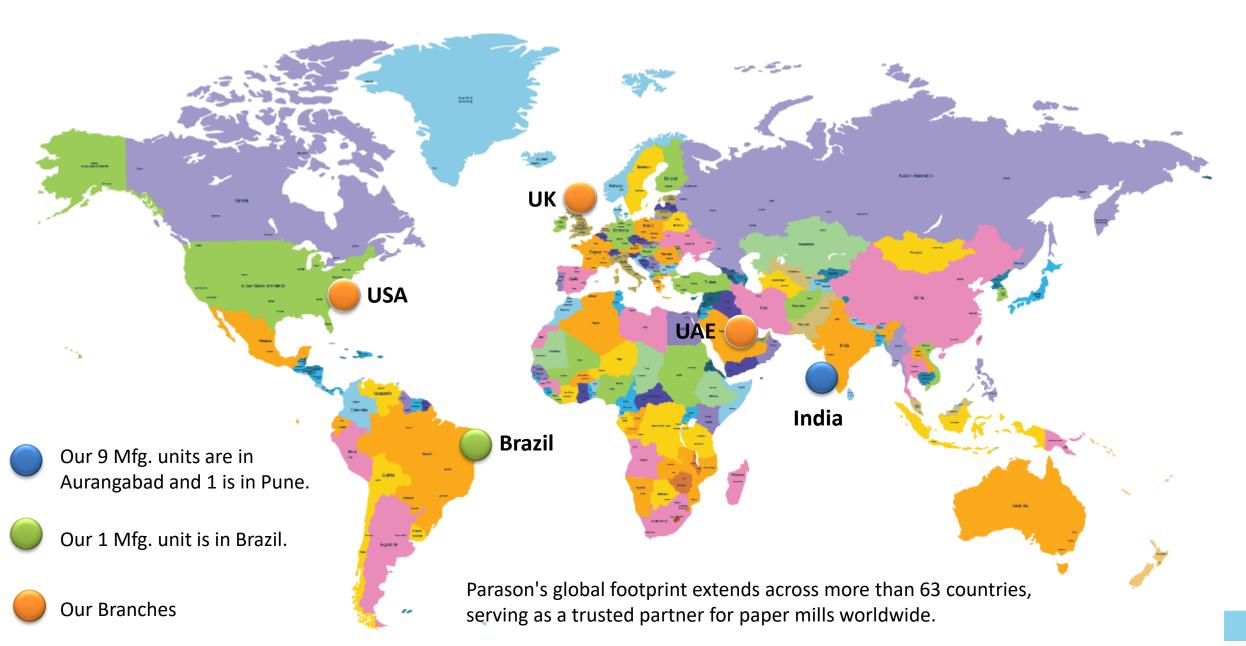
Regional Office

- Delhi
- Telangana Secunderabad
- Andhra Pradesh Rajahmundry
- Gujrat Vapi
- Gujarat Morbi
- Karnataka
- Nagpur
- Kolkata
- Tamil Nadu

Global Presence



Achieving new milestones and competing with ourselves to grow each day





Inspiring Milestones



Achieving new milestones and competing with ourselves to grow each day



Types Of Agro Raw Material





BAGASSE



SARKANDA



WHEAT STRAW



RICE STRAW

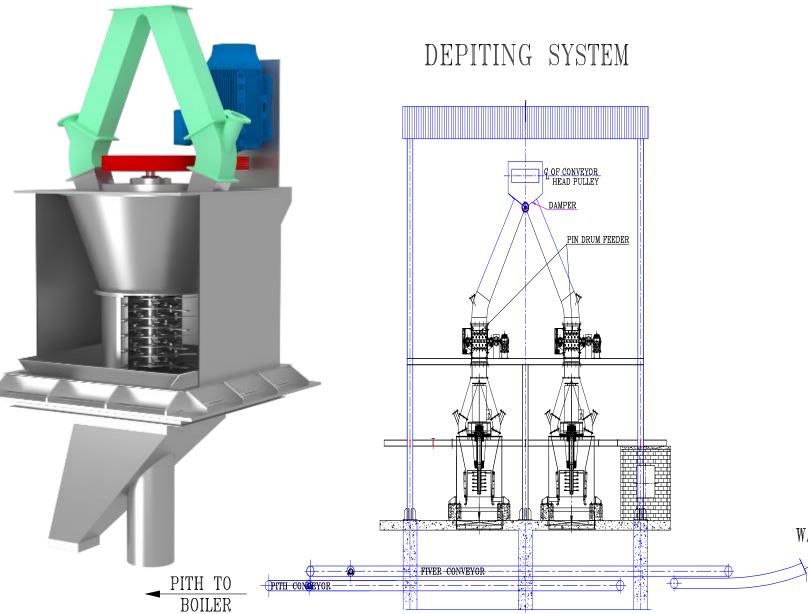
Equipment List



Dry Depithing / Dedusting	Wet Washing System	Continuous Digester System	Brown Washing System	Screening System	Centricleaning System	ODL(Oxygen Delignification)	Bleaching System:-ECF (Elemental Chlorine Free) D0 Eop D1
Dedusting							DO LOP DI
Pin Drum Feeder	Pulper	Cross Screw Conveyor	Johnson Knotter Screen/Knotter	Three Stage Pressure Screening	Four Stage Centri Cleaning System	Heater Mixer	Washer - 3 Nos. D0, E0p, D1 (MOC SS 317L/SS 904L/SMO 254)
Depither	Twin Turbo Washer	Pin Drum Feeder	Brown Stock Washer – 3 /4 stages	Primary Pressure Screen	Primary Centricleaning	Stand pipe	Heater Mixer - 3
Bezner Screen	Aqua Separator	Metric Screw Conveyor	Shredder Repulper – 2	Secondary Pressure Screen	Secondary Centricleaners	MC pump	MC Pump - 3
	Screw Press	Plug Screw Feeder	Final Conveyor	Tertiary Pressure Screen	Tertiary Centricleaners	O2 Mixer	ClO2 Mixer -2
	B-2 Thickener	Digester Tubes – 2	Foam Breaker	Johnson Screen	Fourth Stage Centricleaner	O2 Reactor	O2 Mixer -1
	Clarifier	Cold Blow Discharger	Maloni Filter/Pressure Filer		Fiber Miser	O2 Blow tank with Agitator	Tower Scrapper – 3
	Screw Press/ Belt Press	Blow Tank with agitator	Decker thickener			ODL Washer – 2	Final Conveyor – 3
			Final Conveyor			Shredder Repulper	Bleached HD Tower
			Unbleached HD			Final Conveyor	

FIBRE PREPARATION



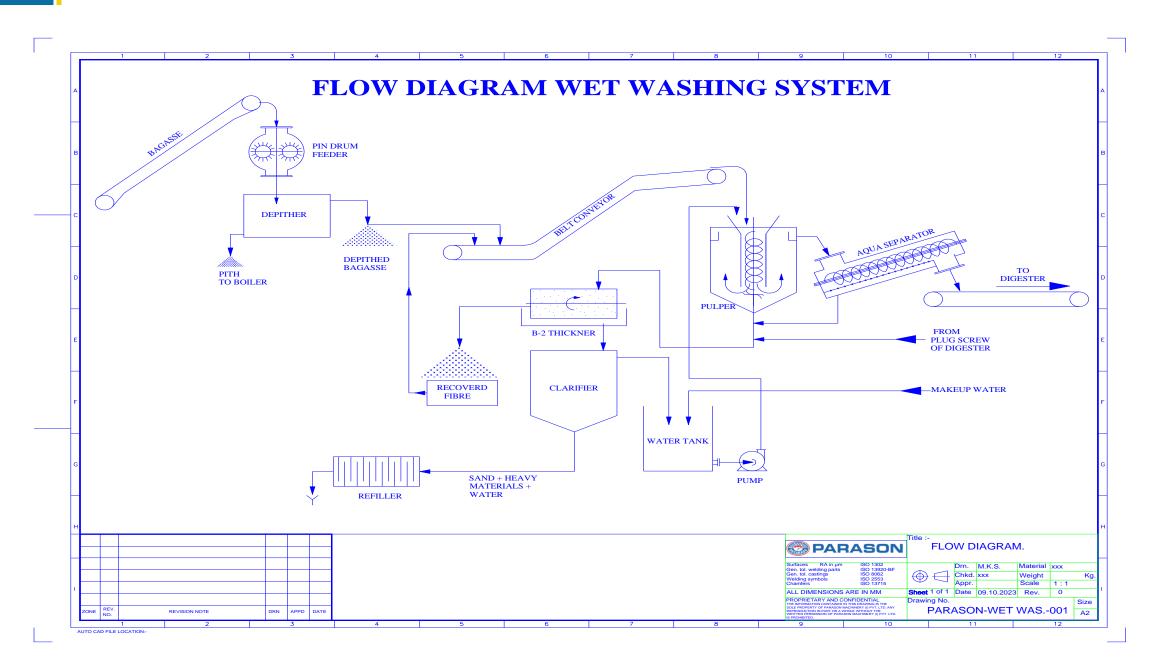


The Depither is designed to separate the Pith/dust from Bagasse/Wheat straw. The raw material is fed through the inlet hopper at a specific feed rate to the top of the Rotor Assembly in which the Hammers are rotating clockwise. The material falling down between the Rotor Hammers. The pith and dust is then forced through Screen by Centrifugal force and discharged through dust chute to a conveyor, which takes the dust either to boiler for burning or for disposal. The fiber is discharged through the fiber chute. The fiber is then taken to a belt conveyor to washing street.

FIVER TO WET WASHING SYSTEM

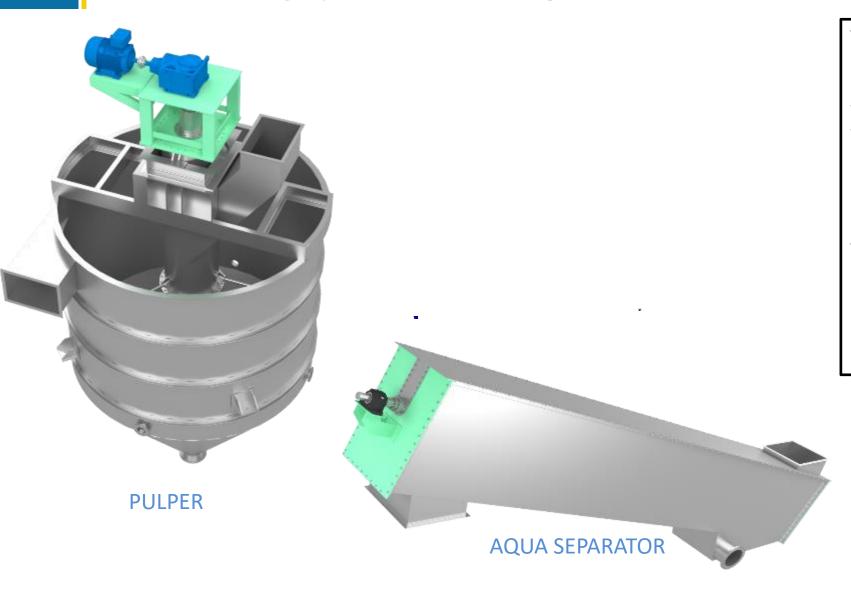
Flow Diagram of Wet Washing System





Wet Washing System With Pulper



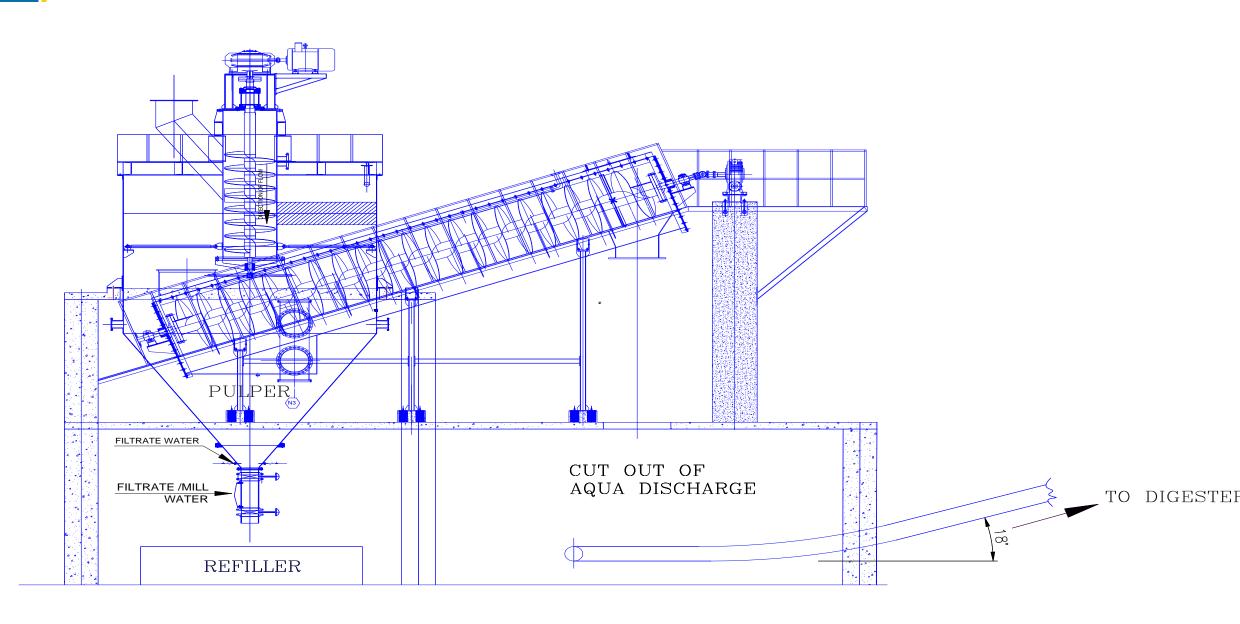


The Dry depithed bagasse/Wheat Straw is fed to the pulper where it is diluted with water to a consistency of 20 - 2.5 % with the high agitation of the pulper rotor, the dirt & pith is loosened, so that-they can be removed in the aqua separator. The Pulper is designed depending on the capacity of the plant.

The Aqua Separator consists of an inclined conveying screw of special design with screw flight in SS 304. The outlet consistency from the aqua separator is around 18-20 %.

Wet Washing System With Pulper

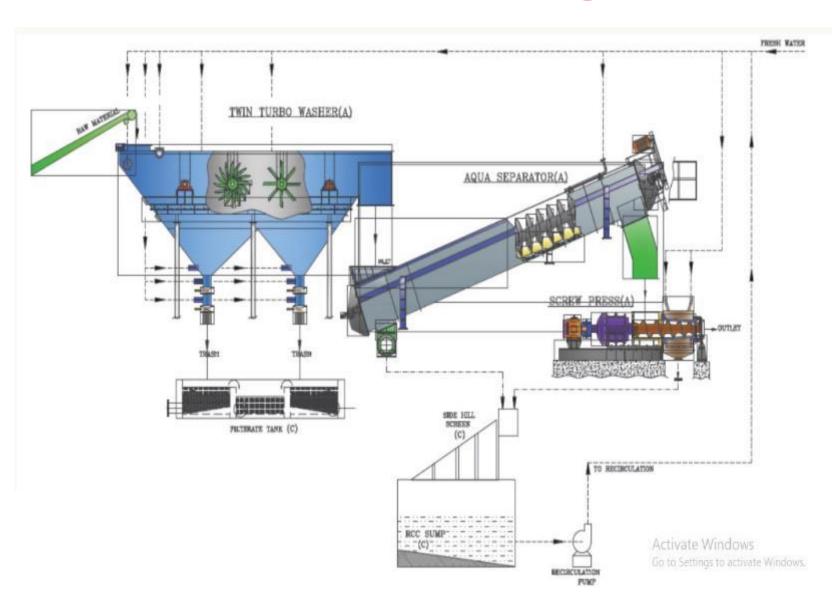




Wet Washing System With Twin Turbo Washer

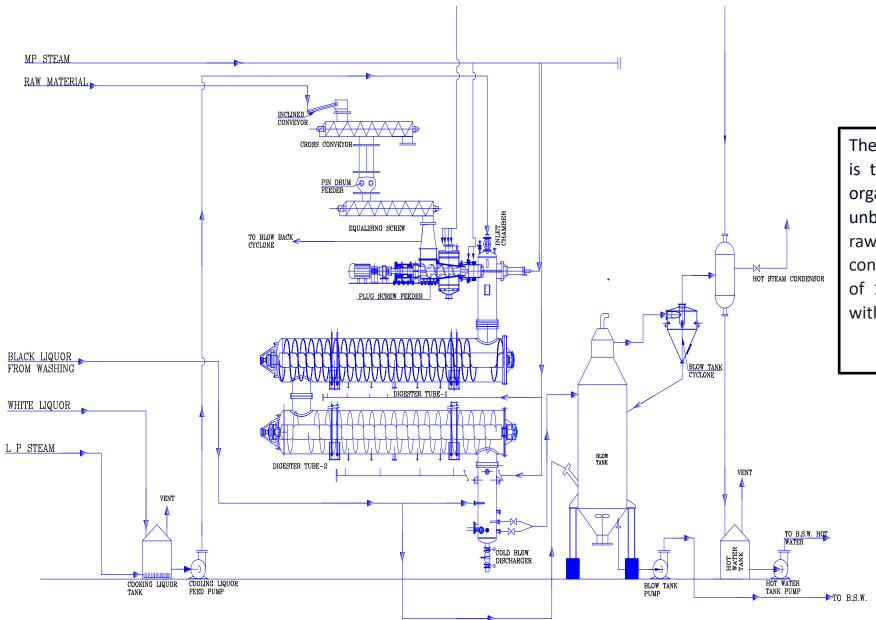


- After dry
 Depithing/Dedusting,
 material is processed for
 washing with water in wet
 washing system. It removes
 dust/Pith from raw material.
- Efficiently removes foreign substances, including sand, pith, mud, stones, silica, etc.



Cooking: Continuous Digester System



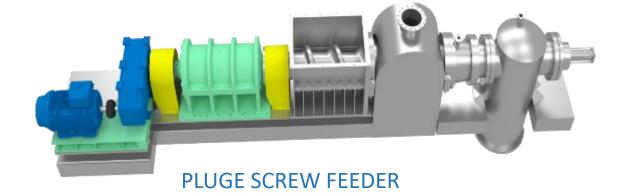


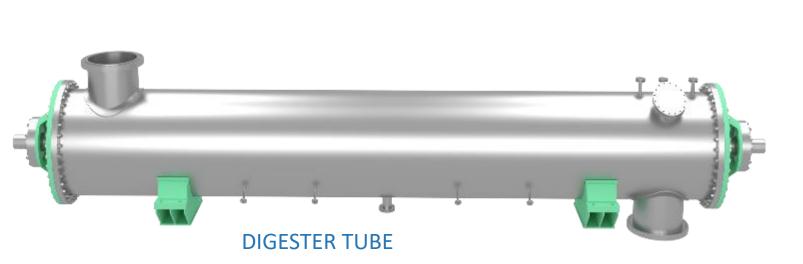
The purpose of cooking the agro raw material is to chemically dissolve the lignin & other organic compounds in order to obtain unbleached pulp. The cooking of agro based raw material is carried out in horizontal continuous Tube Digesters at the temperature of 160 Deg C and we get the cooked pulp within 18-22 minutes.

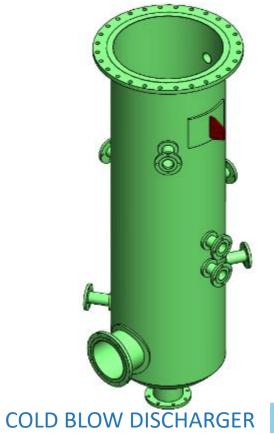
Cooking: Continuous Digester System











Spares



• Essential spares for smooth operation of digester are Plug Screw & Throat, which has to be changed after every 800-900 hrs. operations.



Plug Screw



Throat

AGITATOR

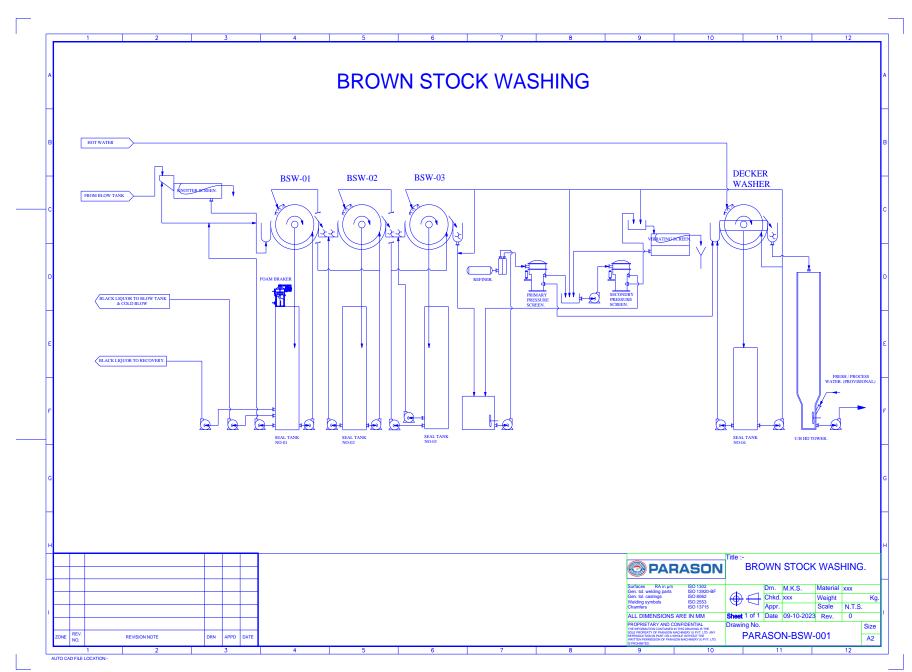


- Effective agitation at low power consumption.
- All wetted parts are of stainless steel.
- Propeller is equipped with adjustable blades.
- optimized blade design.
- Easy & low maintenance.
- High efficiency propeller Design is used to maximize agitation and have been designed for use with all types of stock with Optimum power consumption
- Bearings are accessible from outside hence can be replaced without draining the chest



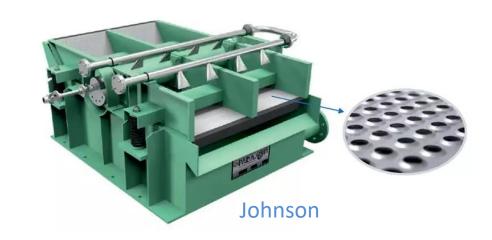
BROWN STOCK WASHING SYSTEM



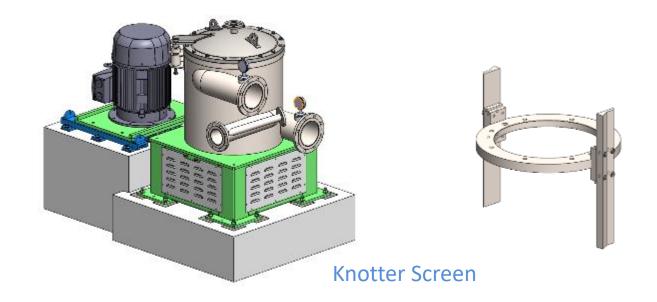


Johnson knotter/Pressure knotter





- Johnson Knotter/Pressure Knotters are required to remove the uncooked material.
- For small plants capacity under 100 MT,
 Vibrating knotter being used with perforation of 8 mm.
- For higher capacity we use pressure knotter as close system efficiently removes the knots.
- Knots again being reused in Digester for cooking.

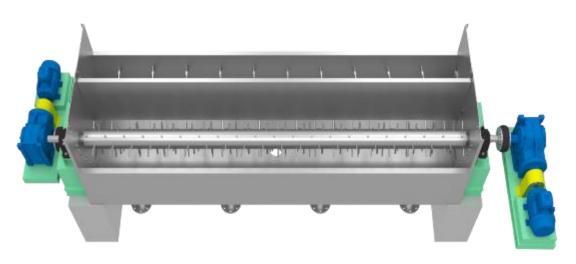




BROWN STOCK WASHING SYSTEM







SHREDDER REPULPER

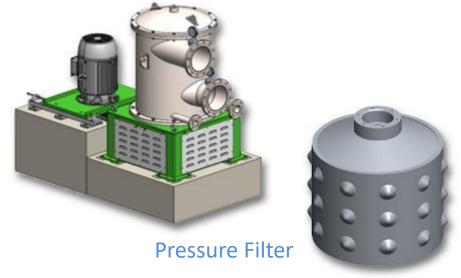


Maloni filter/Pressure filter





- •Working principle In pulp mills, fibres in the spent liquor cause scaling in evaporators and concentrators. Recovering these fibres improves the evaporating efficiency and greatly reduces boil-out and cleaning time. The Black Liquor Filter effectively separates fibres from the spent liquor. All recovered fibre is returned to the pulping line for additional gain. Application and unique features:-
- Fibre recovered.
- •Operates at low rpm.
- •Trouble free operation





Screening- 3 Stage





Tertiary Pressure Screen

Secondary Pressure
Screen

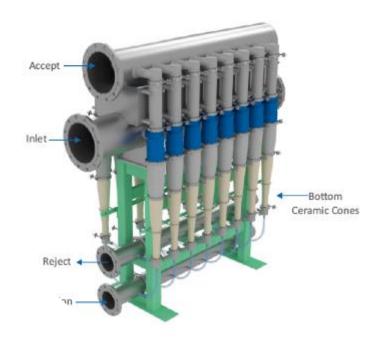
Primary Pressure Screen

- High efficient screening system with lower power consumption.
- Working Consistency range 2.5 3 %
- Slot Size range 0.18 to 0.25 mm
- Advanced structure, durable, convenient disassembly and assembly, simple operation, less malfunctions for continuous working, low maintenance cost.

Centricleaning: - 4 Stage



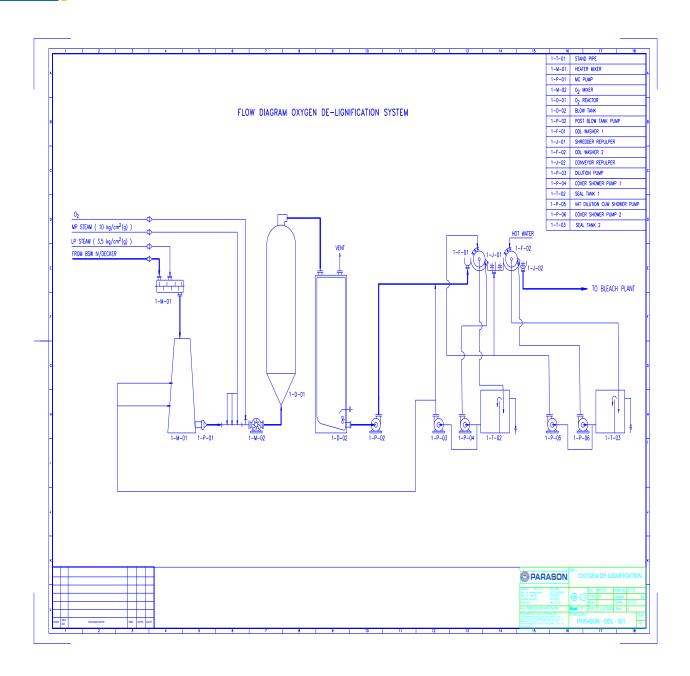
- Efficient removal of impurities like dirt, shives, specks, and light particles.
- High wear resistance construction, bottom ceramic cone.
- The small cone diameter resulting in outstanding cleaning efficiency.
- Working Consistency range from 0.8 to 1 % for better performance.





ODL (OXYGEN DE-LIGNIFICATION) SYSTEM





In Oxygen delignification stage, further we reduce the Kappa number with the help of O2 and NaOH at high temperature which help us reduction in Kappa number by 25-30 %, which further help us reduction in Bleaching chemicals by 25-30 % and less load on ETP.

Conditions for oxygen delignification

Pulp consistency 10-12 %

Retention time: 60 min

Temperature: 95-100 Deg C

Pressure: 3 to 6 Kg/cm²

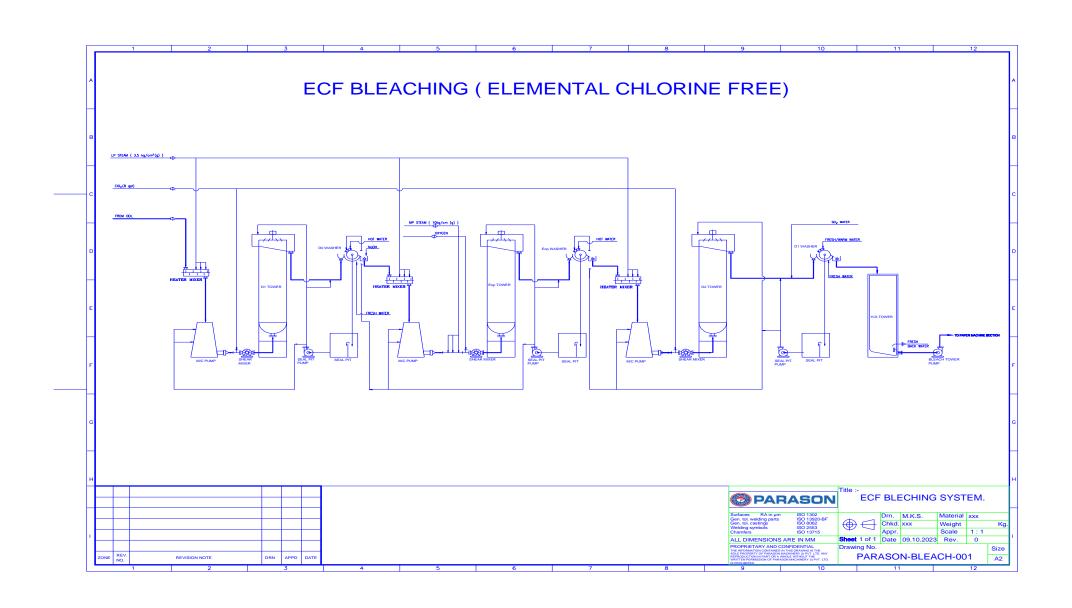
NaOH: 15-20 kg/ton

pH value: above 10

Oxygen consumption: 15-20 kg/ton

ECF Bleaching Sequence D0 Eop D1 (Elemental Chlorine Free)



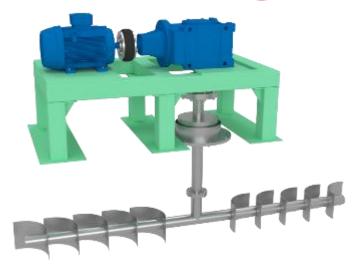


ECF Bleaching Sequence D0 Eop D1 (Elemental Chlorine Free)





Washer in MOC SS 316L, 317L, 904L & SMO 254



TOWER TOP SCRAPER



HEATER MIXER



Agro Pulping Cooking and Washing conditions



S. No.	PARTICULARS	Continuous Digester	Brown Stock Washing	ODL	Еор
1	Cooking Time (minutes)	18-22	-		
2	NaOH consumption (Kg/MT Pulp)	300-350	-		
3	Steam Consumption (MT/MT Pulp)	1.5-1.6	-	0.30-0.35	0.25-0.30
4	Kappa Number	13-14	-	9-10	2-2.2
5	Soda Loss (Kg/MT Pulp)	-	-	15-20	-
6	WBL (m3/MT Pulp)	-	10-11	-	-
7	RAA (gpl)	4.5-5.5	-	-	-

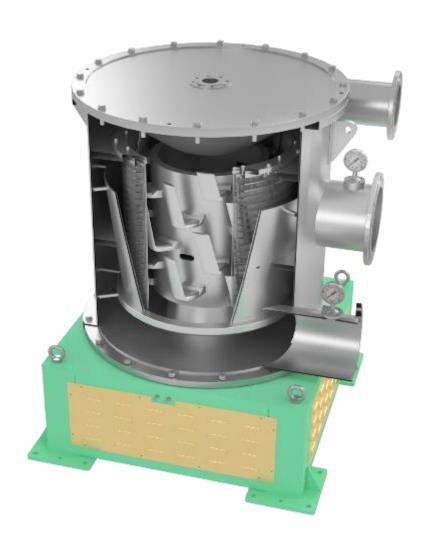
Agro Pulping ODL and Bleaching parameters



S. No.	PARTICULARS	ODL REACTOR	DO	EOP	D1
1	Retention (Minutes)	60	60	90	150-180
2	Consistency (%)	10	10	10	10
3	Temperature (Deg C)	90-95	70-75	70-75	75-80
4	рН	9.5-10.5	2.8-3.0	10.0-10.5	2.8-3.2
5	NaOH consumption (Kg/MT Pulp)	10-15	-	15-20	-
6	O2 consumption (Kg/MT Pulp)	15-20	-	5-7	-
7	ClO2 consumption (Kg/MT Pulp)	-	12-13	-	6-7
8	H2O2 Consumption (Kg/MT Pulp)	-	-	8-10	-
9	SO2 Consumption (Kg/MT Pulp)	-	-	-	1
10	Brightness (deg ISO)	40-45	55-60	70-75	84-85
11	Pulp Properties				Tear 58-60 BL 588-6000 oSR 23-24 Viscosity 9.5-10.5 Ash 1.3-1.5 %

Fractionator





- To segregate the long fiber and short fiber
- Long fiber may be further pass through refiner.
- Short fiber directly forward to mixing chest.
- Long fiber mix together with short fiber after refining.
- Optimization of refining power consumption.
- Improvement in machine runnability.

Conclusion



Advanced solutions presented are designed to be cost-optimized, energy-efficient, and low-maintenance, all while significantly improving productivity. By incorporating cutting-edge technologies like fiber separation, continuous digesters, Brown Stock Washing, Screening & Cleaning, ODL systems, and ECF bleaching, agro-based pulp mills can achieve greater efficiency and sustainability, ensuring long-term success in a competitive industry.

