

HARDAYAL

PULP & PAPER MACHINERY

ISO 9001 : 2015 CERTIFICATE COMPANY

Manufacturer & Exporter

COMPLETE PULP PAPER & BOARD PLANT MACHINERY



'BHARAT GAURAV AWARD'

www.hardayalpapermachine.in



**PIONEER IN PAPER, PULP &
BOARD MACHINERY 5-1000 TPD**

PAPER MILL
INDUSTRIAL MACHINERY



Dun & Bradstreet Global Database
Decide With Confidence

D&b D-u-n-s Number : 67-677-3310

ABOUT US



Hardayal Engineering Works (P.) Ltd. specialised in the manufacturing of, world class Pulp, Paper, & Board, Plants Machineries. The Company is fully equipped with a team of technical professionals and the latest manufacturing facilities, such as V.M.C, C.N.C Turning, Cutting V.T.L, Boring machines, Fabrication, Welding, Pressing, Bending up to 100 mm thickness and 5500 mm in face as per clients' requirements. We also have, in-house casting facility (C.I.M.S & S.S.) with a large infrastructure, containing E.O.T. cranes, located at Ghaziabad UP, just 30 km away from IGI international airport, Delhi.

Established in 1977, by Late Mr. Hardayal Singh (Founder and MD), in a short period of time, Hardayal Works became a well known name in India and the International industry for its modern manufacturing technology and for all type, paper machines, that covered a wide range of paper and board production.

The Chairman, Mr. Hardayal Singh, was honored by the "BHARAT GAURAV AWARD" by the Council of National Development through the former Chief Minister of U.P.

We provide technical solutions from concept to commissioning. We are doing the new project with integrated, pulp and paper machines. We are also doing the revamp of the existing pulp and paper machineries for the upgradation of quality and quantity. We are having the senior most paper technologist and other technical people, from those we are able to do the project from 50 TPD to 1000 TPD successfully. We are having the facility to manufacture the paper machine having the paper deckle at pope 6000 mm. We are having our own, Roll manufacturing unit having the rubbering facility with plain and BDR pattern.

We manufacturing the Jumbo 'H' type frame heavy duty press sections with 1500 mm dia BDR/ P.U pattern Rolls having the capacity to apply 450 kg/cm linear load. We expertise to manufacture the writing and printing paper, producing paper machine with Bi-Nip Press Section, fourdrinier section with top former for the high speed up to 850 M/Min. We are also expert in manufacture the machines, to produce, high BF Kraft paper, Test liner, fluting media and absorbent kraft Paper, producing on MF paper machine having the production capacity 600 TPD with double wire and triple Wire machine, with Pickup system, and followed by the First and Second press, in the closed loop. In modern technology, we can help to speed up the machine up to 600 M/min with achieving the paper web dryness 52% at the dryer section ingoing nip.

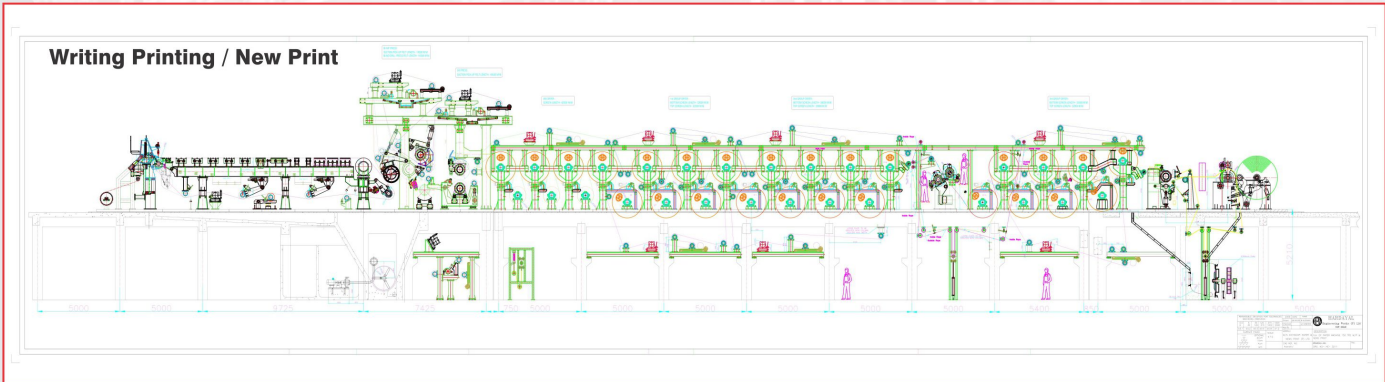
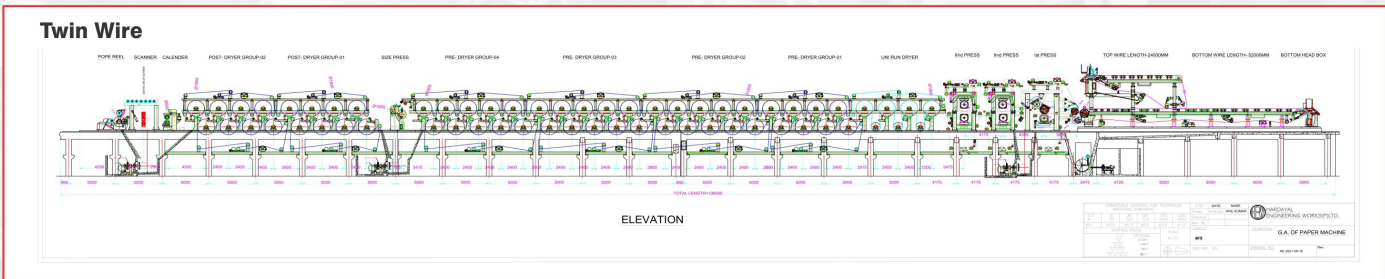
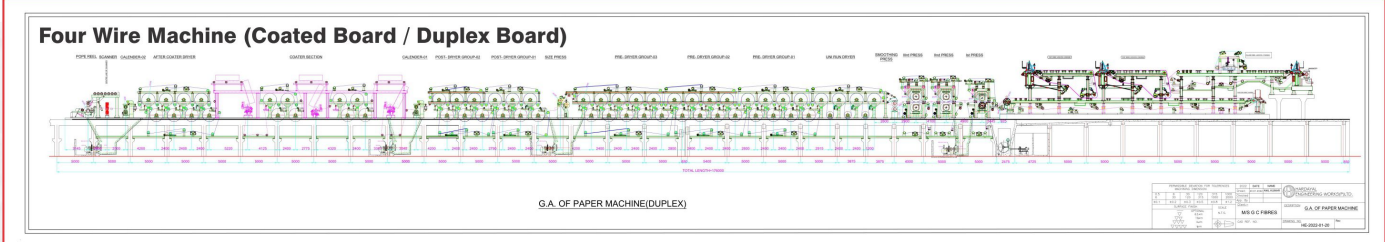
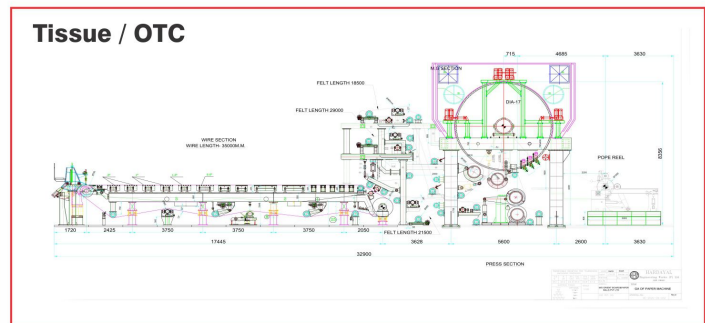
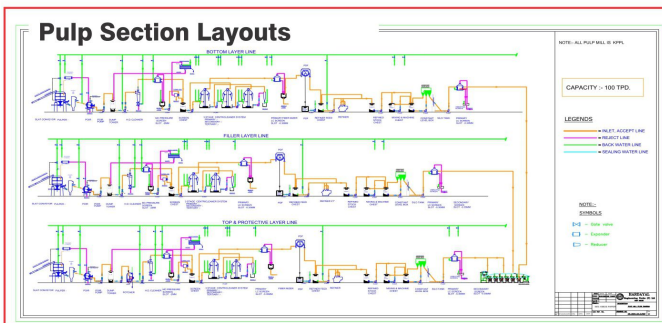


'BHARAT GAURAV AWARD'



High-Precision
Technology
On-Time Delivery
End-To-End
Solutions

PAPER MACHINE LAYOUT



PAPER MACHINES SECTION

We are the best "YANKEE" Machine manufacturer, in recent years in India. In which machine is able to produce Low GSM MG (Machine Glazed) Posters, Soft Tissue and Kraft Papers, (Speed of 500 M/Min.)

TURNKEY PROJECTS

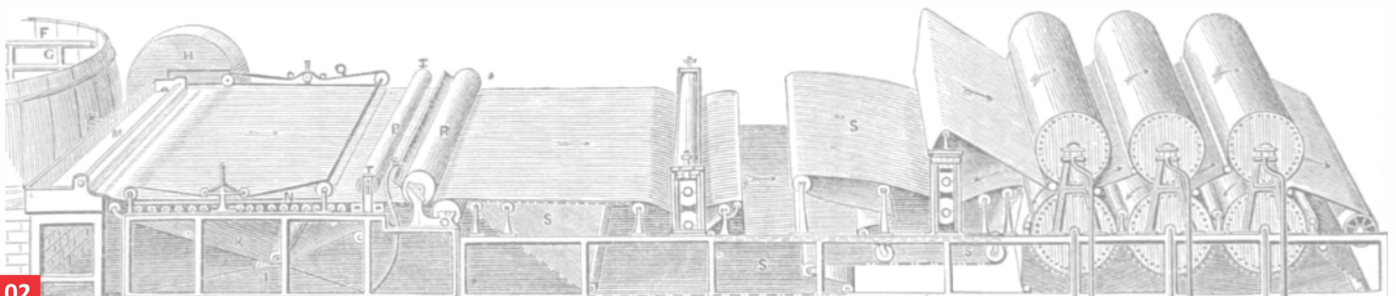
Single Layers & Multilayer Paper Machines For :

- ▶ Kraft Paper
- ▶ Test Liner
- ▶ Absorbent Paper
- ▶ Writing & Printing Papers
- ▶ Newsprint
- ▶ MG Posters & Soft Tissue



PAPER MACHINES

Writing & Printing Paper	Fourdrinier + Bi-Nip
Packaging Paper Machine	Fourdrinier + Conventional Presses
Board Machine	Multilayer Fourdrinier + Conventional Presses Multi Layer Cylinder Mould + Open Presses
Tissue Machine	Fourdrinier + Yankee, Crecent former
Speciality Paper Machine	Filter paper, One time carbon paper, Gasket

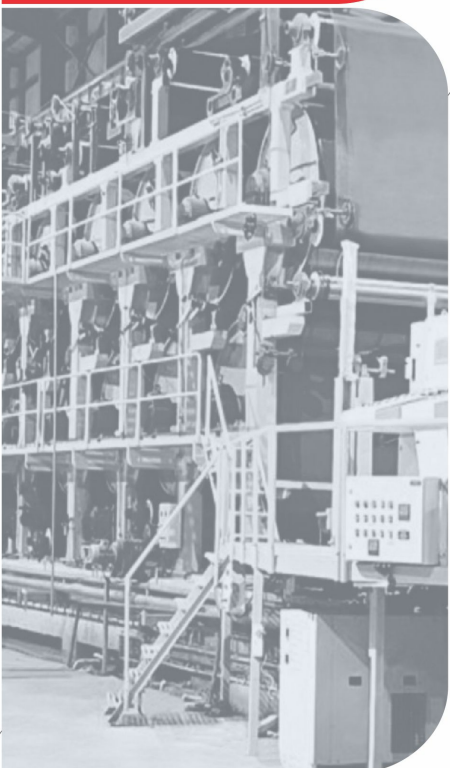




TWIN WIRE MACHINE

Single Layers & Multilayer Paper Machines For :

- ▶ Duplex Board, Coloured Board
- ▶ Straw Board
- ▶ Mill Board
- ▶ Pulp Sheeting
- ▶ Size Press With Kitchen Equipment
- ▶ Coating Plant With Colour Kitchen Equipment



HEAD BOX

Air Cushioning - Pressurized Head Box

- ▶ It Is Applicable For The Machine Speed In Between 300 To 700 M/min.

Open Type Head Box

- ▶ It Is Applicable For The Machine Speed Below 300 M/min.

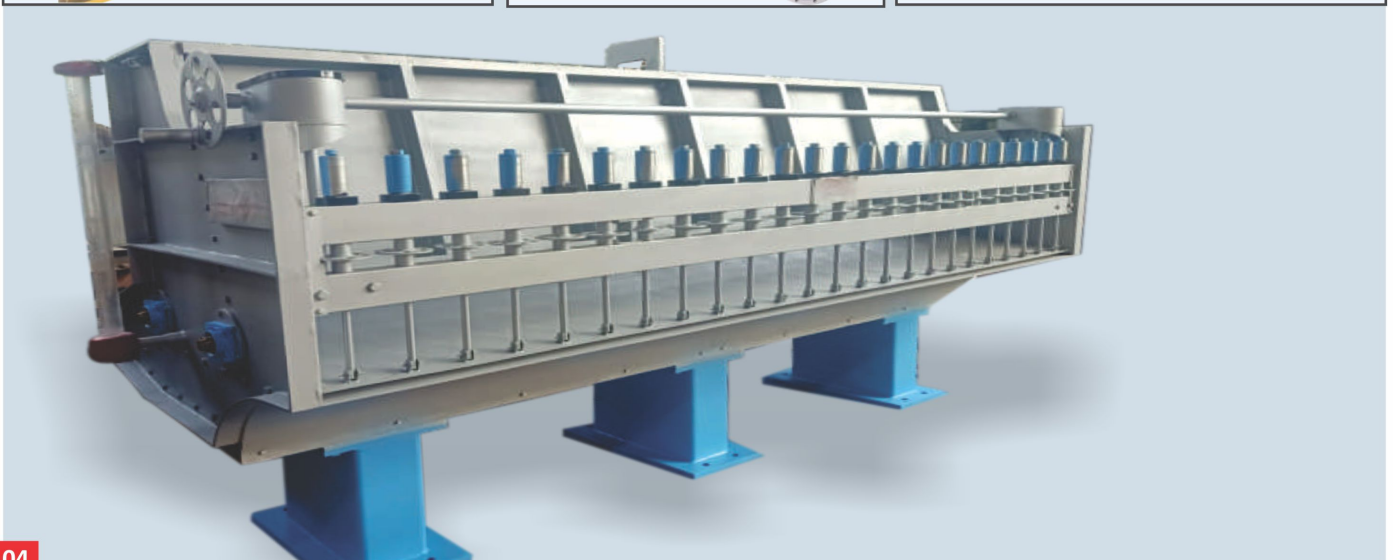
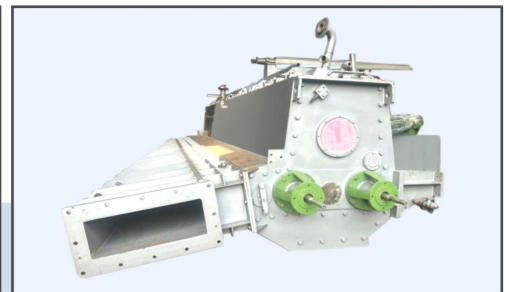
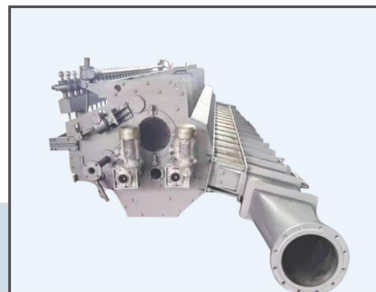
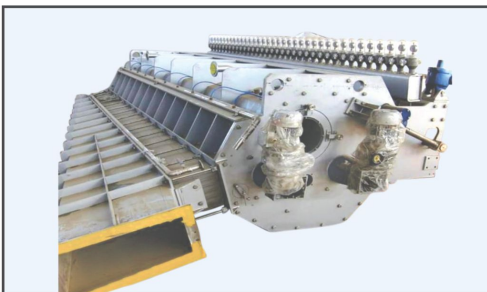
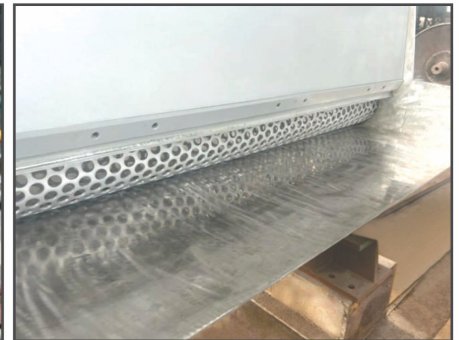
Hydraulic Head Box

- ▶ It Is Applicable For The Machine Operating Speed Above 700 M/min.
- ▶ It is also applicable for the speed range 300 to 700 M/Min.



SPECIAL FEATURES OF OUR HEAD BOX

- ▶ We are designing it, to maintain the required velocity of the stock entered before the head box. Because of proper, engineering, we able to maintain the stock velocity, at out of the slice depends Upon the total head.
- ▶ The allowable cross machine profile variation will be 1 to 1.5%.
- ▶ The stock flow path will be coated with electro polish and Surface, becomes mirror finish.



WIRE SECTION

Wire With Suction Couch Roll

- ▶ High speed wire part deckle upto 6 mtr.
- ▶ Wire part with suction couch roll and plain couch roll for high speed machine
- ▶ Complete wire table with ceramic tops

Advantages

- ▶ Better Formation in High Speed
- ▶ Better Water Drainage System
- ▶ Installed With Low Vacuum Boxes
- ▶ Installed With Duo-Flow/ Tri vac Boxes
- ▶ Designed with Forward Drive Roll

Type of Wire Parts

- ▶ Single wire machine
- ▶ Twin-Wire machine
- ▶ Triple-Wire machine
- ▶ Four Wire machine



FORMER

Former Mould Diameter : Up to 1800 mm
Mould Face : Up to 6000 mm

Advantage

- ▶ Most suitable for Grey Board, Duplex Board and Kraft
- ▶ For better machine direction & cross direction profile
- ▶ For better bonding properties
- ▶ For smooth operation upto 350 mpm machine speed.
- ▶ For better performance at lower, as well as higher GSM range (180 to 550 gsm)



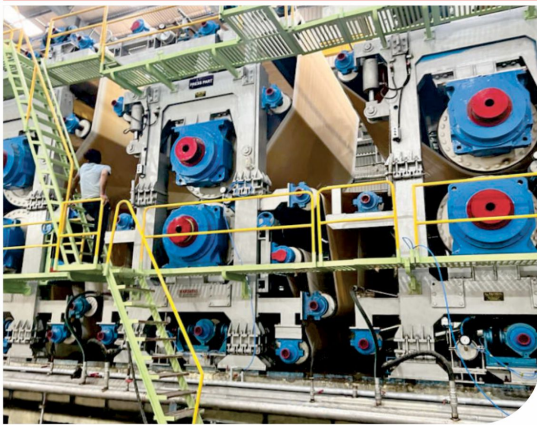
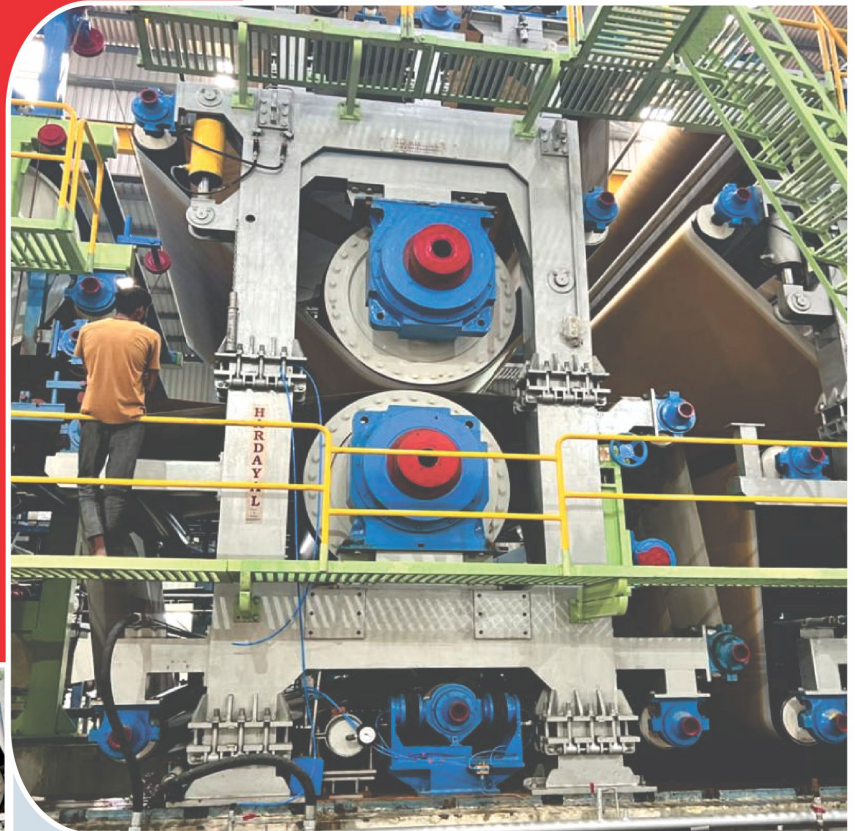
JUMBO PRESS SECTION

With Water Cooling

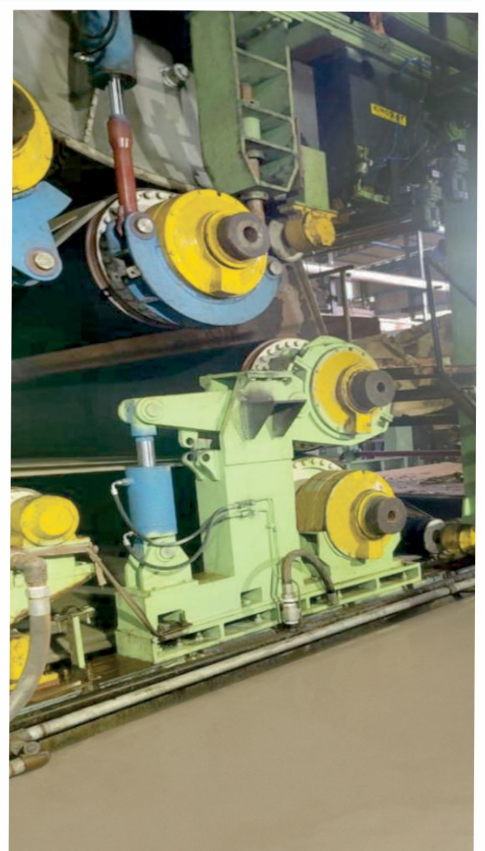
Advantages

Most suitable for Kraft, Test Liner, writing and printing and speciality paper because of efficient water removal.

- ▶ Higher dryness achieved upto 50% in recycled furnish after this press comparison to conventional press upto 45%
- ▶ Production increase by 18%.
- ▶ Improves the physical Characteristics of paper.
- ▶ Improves stiffness & breaking length of paper.
- ▶ Less energy consumption, Save (power and fuel) per tonne of paper.



Press Roll Diameter	From 950 mm to 1500 mm
Loading Capacity (Linear)	From 180 to 450 kg/cm
Drive	Bottom roll / or Bottom & Top roll
Double Felted Blind/ P.U, Drilled Rolls With Cooling Arrangement.	



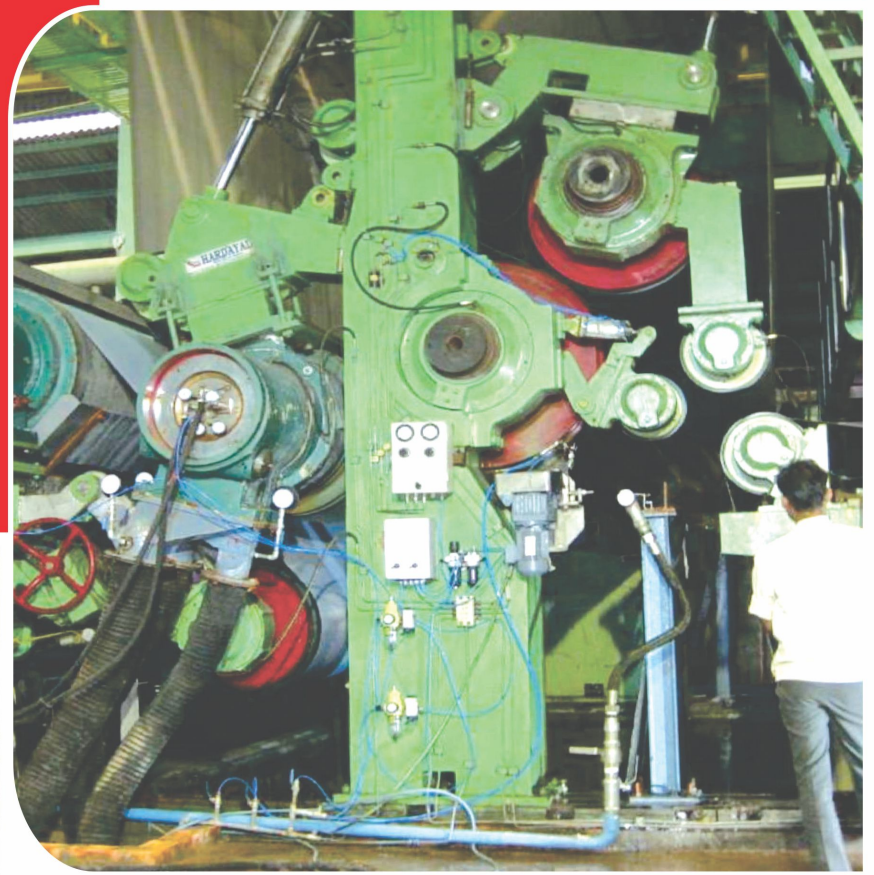
Tri - Nip Press Loading Design


1st Nip	70-100 kg/cm
2nd Nip	100-150 kg/cm
3rd Nip	150-350 kg/cm
Felt tension	6.5 N/mm
Web transfer	Can be suction pickup

BI-TRI NIP PRESS

With 3 Zone Suction Roll

- ▶ Suitable for the machine speed up to 850 M/Min.
- ▶ Suitable for the substance range 60 – 120 G/M2
- ▶ Suitable for writing & printing as well as specialty grade low GSM high BF Kraft paper.
- ▶ We are having, technical people to do the proper engineering.





TO WHOME SO EVER IT MAY CONCERN

This is to certify that M/s Hardayal Engineering works pvt ltd, Delhi, has Supplied **Complete Bi-Nip Press Frames** for our Paper Machine Producing **Writing & Printing Paper**.

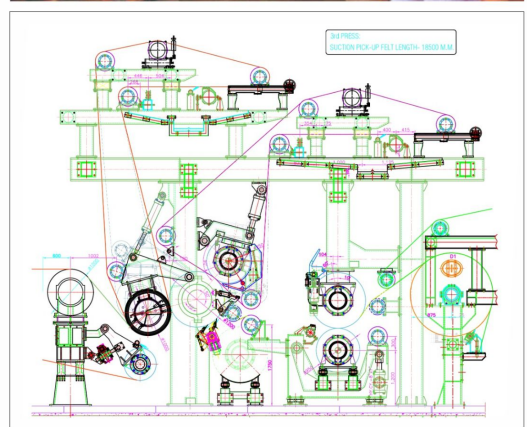
It is running successfully , as per our satisfaction. Hardayal has done erection of machine in **record time of 15 days**. Our company wishes Hardayal Engineering works pvt ltd Delhi, great success in paper industry.

Seeing the performance we have placed **Repeat order for BI-Nip Press Frames for 2ND Machine** .

For Century Pulp & Paper

C R C Rao
C R C Rao
Head Engineering

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STEEL DRYER & MG SECTION

- ▶ M.S. Fabricated Drying cylinders with high evaporation rate.

Available in 1200mm, 1500mm, 1800mm, 2000mm, 2500mm diameter X 5500mm face.

- ▶ Shell thickness varies from 25mm to 80mm.
- ▶ Operating pressure up to 4.5kgs/cm² and specially designed for higher working pressure up to 6.0kgs/cm².
- ▶ Suitable heavy duty framing, in graded Cast Iron and Mild Steel, Designed and fabricated, for the maximum coverage of paper, at dryer without vibration. frames are duly heat treated.



SURFACE SIZE PRESS

- ▶ Rolls (Micro Rock/ Micromate / P.U)
- ▶ Framing for size press
- ▶ Set of rope idler pulleys
- ▶ Paper guiding roll.

ADVANTAGES

- ▶ In kraft media.
- ▶ Increase the BF up to 5.
- ▶ Increase, the stiffness of the Paper / Board
- ▶ Give better printability.

IN WRITING & PRINTING PAPER

- ▶ Increased capacity
- ▶ Increased smoothness
- ▶ Increased printability



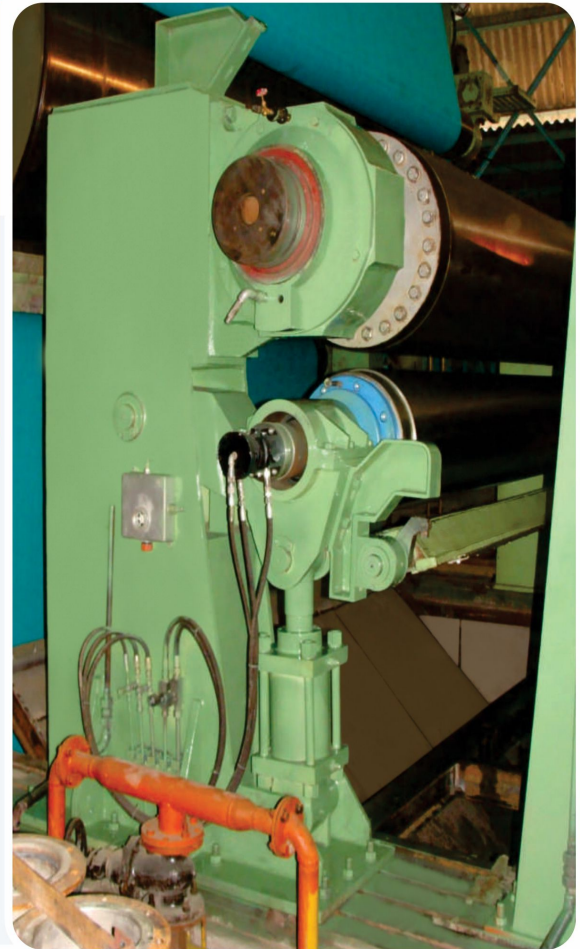
SURFACE SIZE
PRESSES



CALENDER

The Calender section of paper machine consists of Chilled Rolls and other equipment. the paper web is run between the rolls, in order to further smooth it out, which also give it a more uniform thickness. the pressure applied to the rollers, according to quality of paper.

After calendering the web has a moisture content of about 6% (depending on the furnish). It is wound, onto a tambouroll, and stored for final cutting and shipping.



POPE REEL

- ▶ Pope reel is designed on the principle of friction winding of paper.
- ▶ Primary grab arm is pneumatically/ hydraulically loaded and tilted hydraulically/ mechanically with manual operation.
- ▶ Secondary arm is loaded pneumatically / hydraulically.
- ▶ Pope drum is SS/MS fabricated and designed to withstand required nip pressure and provided with doctoring arrangement
- ▶ Framing heavy duty in MS/SS/CI construction.

Technical Data

D-max Paper Roll	Approx 2000 mm
Reel Drum Diameter	900mm - 1200 mm
Reel Spool Diameter	260mm - 400 mm
Paper Density (estimated)	750-900 kg/m



PULP & STOCK PREPARATION SECTION

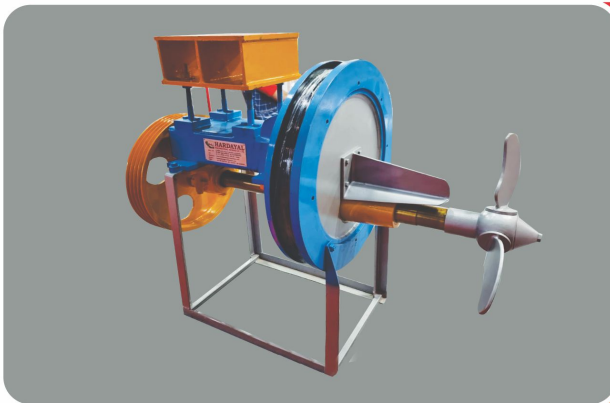
Equipments of Pulp Section

Conveyors, Bale Breaker, Moist Depithor, Caustic Lyemixture, Tankers, Potcher Washer, Pumps, Disc Refiner, Decker Thickener, B2 Thickener, Centrifugal Screens, Cowan Screens. HD Cleaners, Johnson Screen, Centri Cleaner, Rag Choppers, Chest Agitator, Pulper, Digester, Blow-Tank Turbo Seperator, Beater, 3F-Screen



CONVEYOR

Slat	Conveyor
Belt	Conveyor
Width	1- 2.5m Face
Length	13 - 30 Mtr.
Inclination	26 O - 30°



CHEST AGITATOR

Type	Vertical / Horizontal
Capacity	40 - 300 M ³
Impller	S.S / C.I
Body	S.S / C.I
Power	10-kw - 100-kw



WASHING POTCHER

Use	For Di- Inking/ Pulp Cleaning
Type	Drum type
Size	1Mtr. - 3Mtr. FACE
Dia	1 Mtr. - 3Mtr. Dia
Body	S.S 304 / 316



FINE SCREENING

Fine Screening	Pressure Screen (Hole Type Basket) Pressure Screen (Slot Type Basket)
Thickner	Gravity Thickner Gravity Drum Thickner Screw Press
Pulp Storage	Tower Agitators Chest Agitators
De-inking System	Hot Disperser System

PULPERS

- ▶ Size : 6 m³ - 40m³
- ▶ Type : D-Type Pulpers
: Intensa Pulpers
: Hi-con pulpers
: A.T.S Pulpers
: Drum pulpers

Advantages And Benefits

- ▶ Detached the ink from fiber
- ▶ Due to high consistency (15-18%)
Chemical consumption becomes less
- ▶ No degradation of fiber length
- ▶ This is the first step to determinate the
good De-inking system performance
- ▶ Suitable for all recycled fibers.
- ▶ V' Belt pulley drives for lower capacities
- ▶ Gear box driven system for higher
capacities



POIR

(Application and Benefits)

- ▶ The slushed pulp is discharged through this poir
screen plate at a stock consistency 4.0%
- ▶ Removed of contaminates and foreign material.
- ▶ Act as a first step of coarse screen.



Technical Data

MODEL	CAPACITY	DRIVE	MOTOR	
			KW	TPD
HHCP-6	6 m ³	PULLY'S AND BELT	110	30-45
HHCP-8	8 m ³		150	50-60
HHCP-12	12 m ³		230	80-90
HHCP-16	16 m ³		300	100-120
HHCP-20	20 m ³		340	120-150
HHCP-25	25 m ³		450	160-180
HHCP-30	30 m ³		500	180-200

Feature

- ▶ 1 No. Rotor for gentle acting
- ▶ 1 No. Extraction plate (perforated)
- ▶ 1 No. Bearing Body
- ▶ 1 No. Flat Belt Drive
- ▶ 1 No. Feed Chamber
- ▶ 1 No. Discharge Pneumatic Valve

Technical Data

MODEL	CAPACITY IN LITERS	MOTOR	
		KW	HP
POIR 0.6	650	22	30
POIR 1	1000	30	40
POIR	2000	55	75

3F-SCREEN

Advantages

For removal of flat, narrow and long foreign material (heavy and light weight) contaminants, such as corks and plastic pieces. This is most suitable for primary screening after the pulpers. The table given below shows the relation between stock consistency and screen perforation for selection.

Specifications

THE MIDDLE BODY consists of one no. stock inlet, for tangential feeding, the stock is being accelerated by rotating impeller.

BEARING BODY and rotor with perforated extraction plate is fitted in the upper body.

BED BAR In addition to breaking the stock, the bed bar acts upon the change of flow from rectified to turbulent, to minimize the flake contents.

ACCEPT STOCK OUTLET The stock entering under high pressure is exposed to impact and shear forces caused by the impeller/ Bed bar for defibration and goes upward through perforated extraction plate while foreign material goes down into the tail cyclone for removal.

HIGH PRESSURE, BACK WATER PUMP It takes water from thickener tank and clarified water, is feed to tail cyclone, making pulp consistency low and also in main unit to increase turbulence.

SETTLING TANK/JUNK REMOVAL TANK The heavy rejected goes, in the junk tank for intermittent manual removal.

FLOATING STOCK OUT LET The stock flowing in the settling tank together with the heavy, goes upwards to get through the floating stock outlet, at the top of tank and enters the circulation pipe linked to the control part of the main unit.



Technical Data

CONSISTENCY (%)	HOLE PERFORATION (IN MM)	SLOT PERFORATION (IN MM)
3	5-3	1.5-1.0
2.5	3-2.5	1.0-0.5
2	2.5-2.0	0.7-0.4
1.5	2-1.5	0.4-3.0
1	1.5-1.2	0.3-0.15
0.5	1.15-0.1	1.15-0.1

CENTRI-CLEANERS SYSTEMS

- ▶ Centrifugal cleaning removes particles from suspension, that affect the paper quality. In low consistency it performs well. Lower the radius of hydro cyclone's higher the centrifugal force, acting hence, it results, removal the foreign material Efficiently.
- ▶ Due to centrifugal force, heavy reject (specific gravity higher than H₂O) outward while the light reject (specific gravity lower than H₂O) move to the centre.
- ▶ Centrifugal cleaning can removes smaller particles than the screening (below 10 microns)
- ▶ We design, the best centricleaning system
- ▶ We are manufacturing the hydro cyclone bottle capacity from 250 to 1000 ltr per minute.



Capacity of Bottles

400 lpm	1000 lpm
500 lpm	1500 lpm
600 lpm	2000 lpm

Advantage

- ▶ Remove sand from the pulp
- ▶ Remove heavy particles from the pulp
- ▶ Runability of the machine improves
- ▶ Can installed in stock preparation
- ▶ Can be installed in machine section before head box



CONNECTED GLOBALLY



INDIA



OUR GLOBAL PRESENCE



Journey Continues.....

HARDAYAL
PULP & PAPER MACHINERY

ISO 9001 : 2015 CERTIFICATE COMPANY

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MANUFACTURER & EXPORTER : COMPLETE PULP PAPER & BOARD PLANT MACHINERY