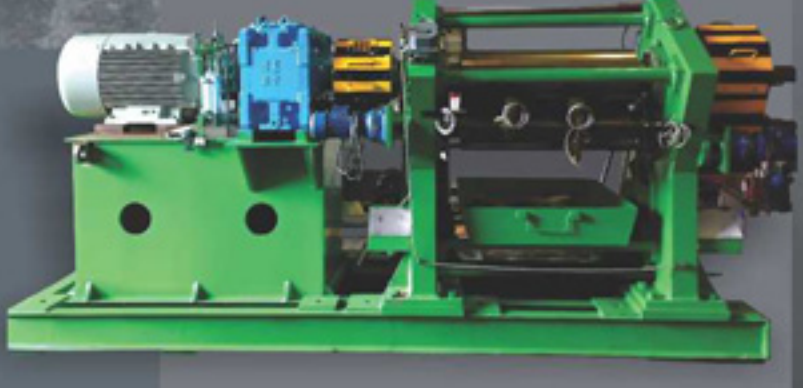
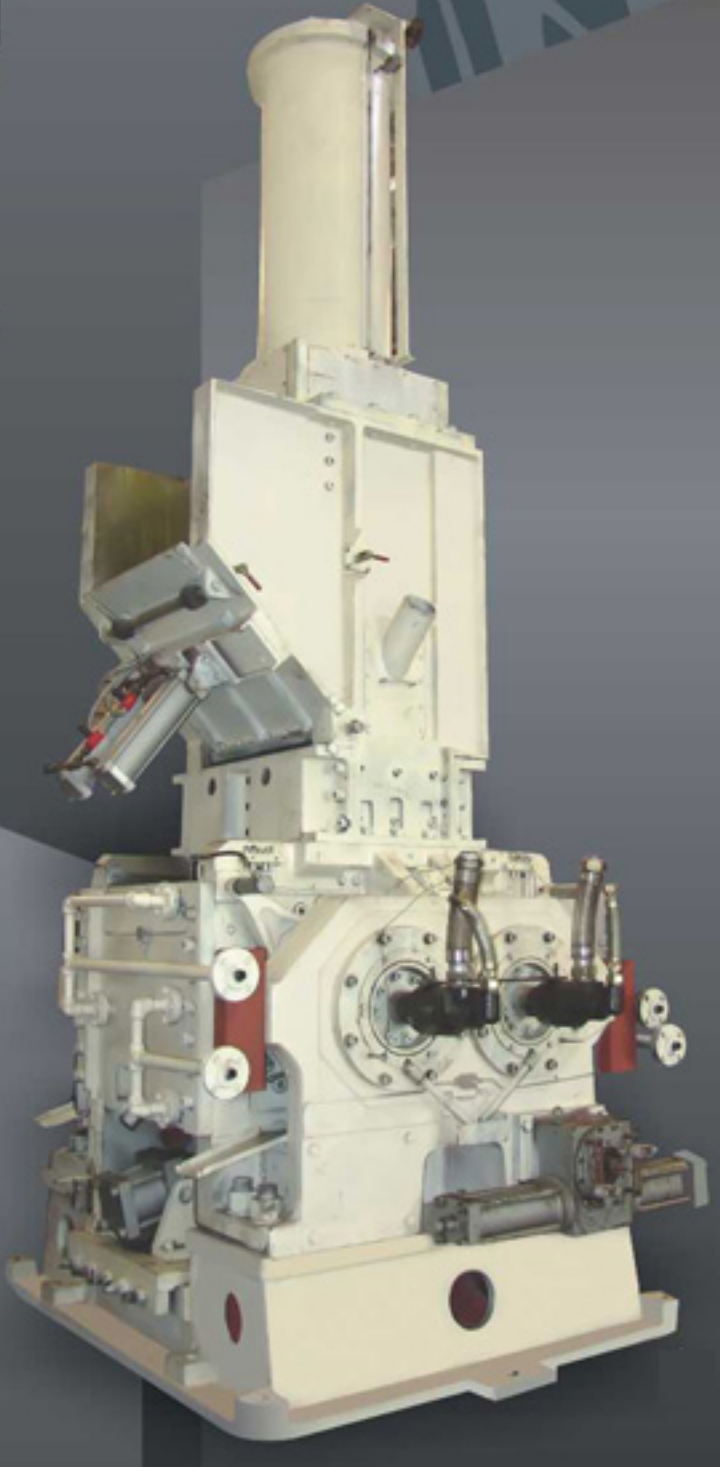
BAINITE MACHINES PVT. LTD.

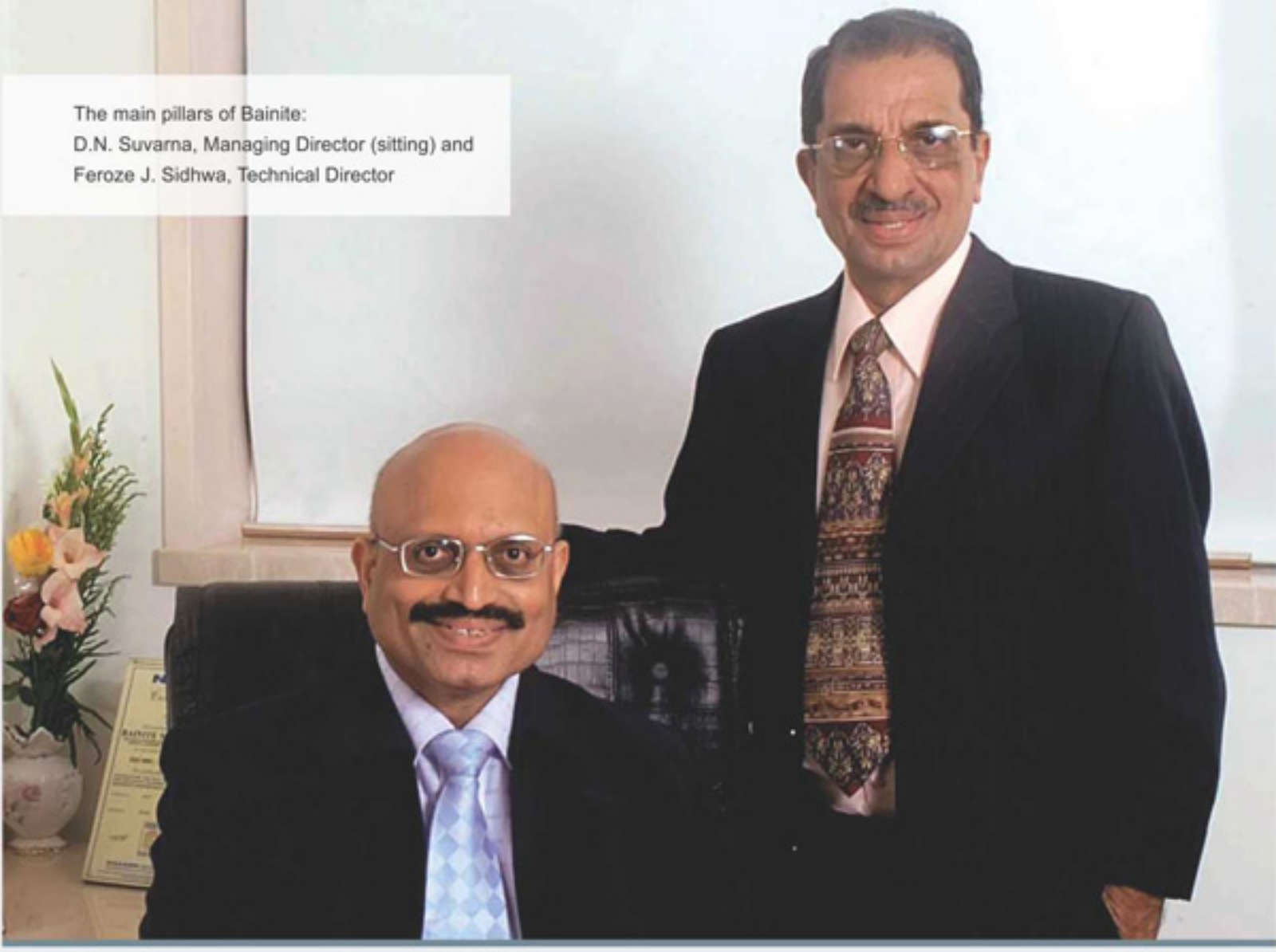
Your partner in the Rubber & Tyre Industry

BAINITE

Technology That Drives Industry







The main pillars of Bainite:
D.N. Suvarna, Managing Director (sitting) and
Feroze J. Sidhwa, Technical Director

BAINITE MACHINES is a technology-driven engineering company manufacturing customized machinery for the Rubber & Tyre Industry.

Bainite designs machines, through its extensive field data and feedbacks, continuously improving on material selection and its thermo processing fronts, to develop improved properties and enhance user friendly features.

Our team's innovative designs, dedication to quality and excellence, consistent supply and excellent after-sales service is well known all our clients in India & Overseas.

Combining the contemporary technology with over three decades experience and blending mechanical engineering expertise with thorough understanding of customer needs, BAINITE offers you, superior solutions by :

- Supplying new machineries/equipment
- Reconditioning / Rebuilding or Upgrading old machinery
- Supplying Peripheral Machinery, Spares & Ancillary parts to match existing imported equipments
- Consulting on turnkey projects starting from the initial designing of machine layout plans to the final installation of machineries and their commissioning

Quick Facts:

- Established in 1983, BAINITE is a leading technology driven Indian engineering company
- Led by two dynamic technocrats - Mr. D.N.Suvarna & Mr.F.J. Sidhwa (both veterans in the Indian rubber industry) with professional management in place
- All the top 10 tyre companies in India are our customers
- Exports to Sri Lanka, USA, Malaysia, Thailand, Ghana, UAE, Nigeria, etc
- ISO 9001:2008 & CE certified
- Featured in leading journals for providing "High-tech solutions to tyre industry"

INFRASTRUCTURE

Plant

Most modern manufacturing plant at Mumbai, India's commercial capital.

Design Cell

The Company's state of the art Design Cell is the nerve center of engineering sophistication. Led by a Design Director and manned by trained experts, the Cell is well-equipped with the latest computers and design software like CAD and Mechanical Desktop. The Design Cell uses computerization in all design aspects to ensure designing speed, precision and accuracy. The design cell is in constant contact with the company's overseas associates for a continuous update on ideas and technology.

Bainite building

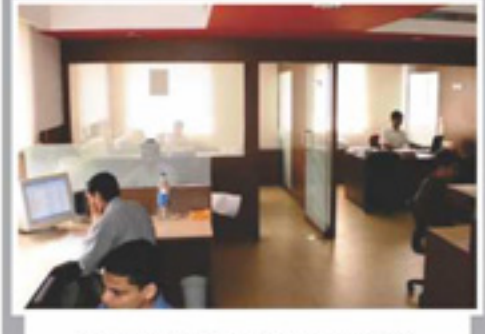
Spanish Make 6.5 m Bed CNC Floor Borer

One of Seven Machine Shop Bays

Assembly & Despatch

1 of 13 Precision Boring m/c

Chamber Drilling



Design & Development Cell

Reception

Conference Room

INTERNAL MIXERS

Bainite Internal Mixers (Tangential or Intermeshing Type) are widely recommended for masticating and compounding of various types of natural and synthetic rubbers as well as different grades of plastics. The mixers are available with Linear Actuator, Drilled Sides, Stellite Welded Rotors, Discharge Drop Door and all the latest features. All Bainite Internal Mixers are manufactured to match International Standards and can be easily compared with the best products available globally. The Bainite Internal Mixers enjoy a world wide reputation as being mechanically, electrically and metallurgically superior to any other competitive machines.

Rugged Design

- permits operation at higher HP and greater speed giving you superior quality production at lower conversion cost per kg

Superior Quality Mixing

- effective rotor design (lobe & twist angle), multi-action mixing and controlled operating conditions (time, temperature) ensures uniformity of dispersion, viscosity, temperature, and cross-linking properties batch after batch

Short Mixing Cycle

- as it fills maximum material in small areas and vigorously mix the compounds

Reliability

- Rotor Centre profiles & Mixer Chamber are computer designed and Mixer built with controlled manufacturing to withstand most demanding working conditions

Clean machine -

- with'Double Sealing & Self Sealing Dust Stops' minimizes leakage throughout the operation

Zero Maintenance

- Wide latch locking door - centrally supports the door efficiently
- Precise Heat Transfer - Leak proof closure and rotors with large cooling pockets restrict heat build up in compound during mixing.
- Modular Design
- Easy availability of accessories - as they are standard bought out items

Wide Range -

- Tangential Mixers - 40L, 80L, 120L, 160L, 180L, 240L, 270L, 370L
- Intermeshing Mixers - 50L, 95L, 150L, 210L, 330L

Optional

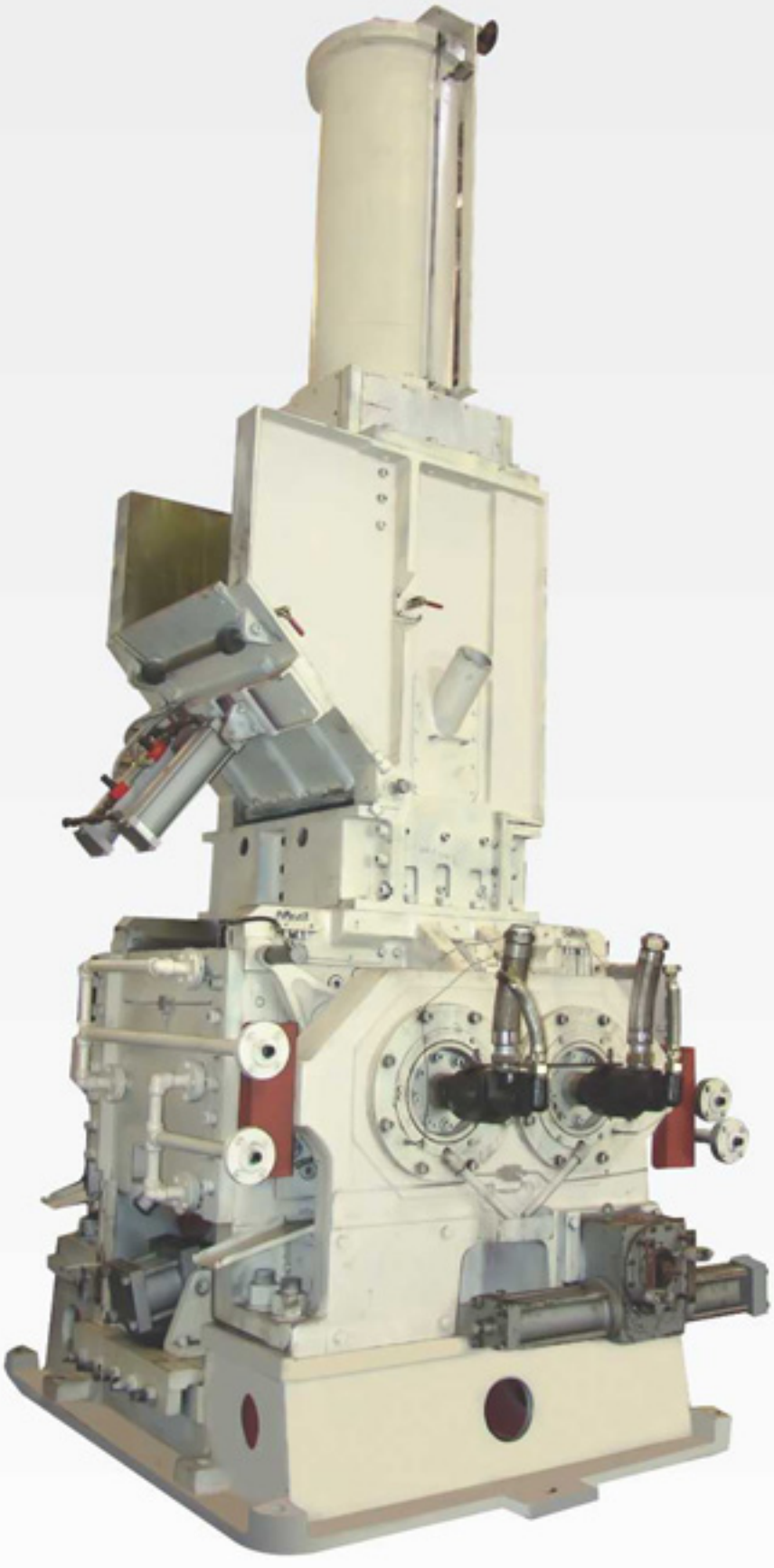
- Fully automated menu driven and computer controlled
- Mixers with Hydraulic Ram or Pneumatically operated Rams
- Mixers with Temperature Control Units.

Versatility

- as you can use for rubber or plastics processing; steam heating or water cooling

1.6L Lab Mixer

80L Mixer With Hydraulic Ram



180 L Mixer with Hydraulic Ram & Control Panels

240L Mixer

Mixer With hydraulic ram

270L Mixer With Pneumatic Ram

EXTRUDERS (HOT OR COLD FEED)

Bainite Rubber Compound Extruders are best designed for extruding rubber treads, sheets, hoses or coating beads with cross-heads. The extruders are manufactured with all the latest features, some of which are optional, such as swing-type feed roll mechanism, fully hydraulically operated die heads, hollow shaft, in-built thrust bearing housing, etc. The Extruder's screws are the heart of the machine and their profiles are specially designed for quick and homogenous mixing, biting at the feed zone and for creating correct accurate throughput and porosity-free compounds. The construction material for the Extruders comprises of carefully selected special alloys with the best thermal treatments to develop the best mechanical properties and critical areas coated with special alloys for wear protection and to ensure long-lasting, trouble-free, smooth and continuous running for many years. The extruders are offered in many sizes as per requirement.

- Screws with hard weld stellite on Screw Flights and Manufactured from alloy steel to provide strength and also flexibility under operations due to cantilever mounting of screw.
- Solid Barrels with spiral cuts at inner diameter ensuring efficient heat transfer during water pass.
- Liners are either nitrided/case carburised/bimetallic in construction as per the requirement and is of wet design ensuring efficient heat transfer, with cooling medium always in direct contact with outer diameter of liner.
- Feed Hopper with spiral cut and feed roll design, ensure proper bite feed of strip to barrel.
- Thrust bearing housing in gear reducer output assembly, designed to ensure concentric screw alignment with respect to barrel inner bore.
- Direct variable drive ensuring constant and desired output.

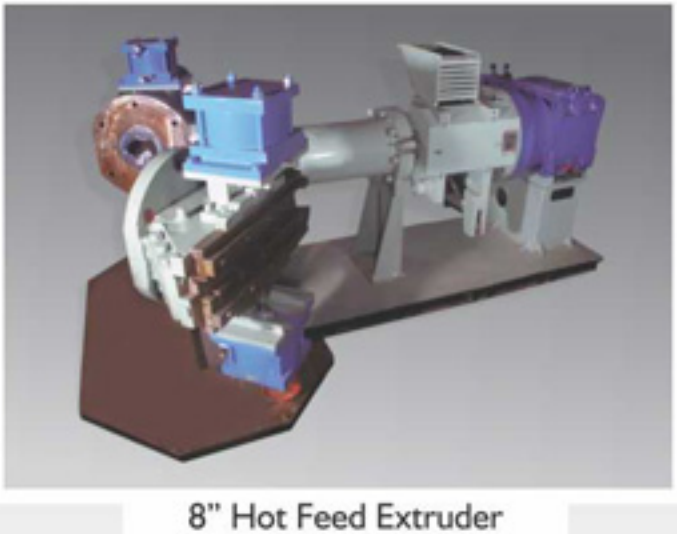
A single steel fabricated and machined base is used for mounting motor, gearbox and basic extruder assembly forming a single unit, hence easy shifting / relocation of the machine.

The screw for Cold Feed Extruder is produced from EN41 B and nitrided to 0.5 - 0.6 mm thickness and supplied with Temperature Control Units.

Pneumatically locked or Hydraulically locked Tread Heads.
The Optional Tread Heads with Multi positioned guides have extruding different profile shapes.

Range:

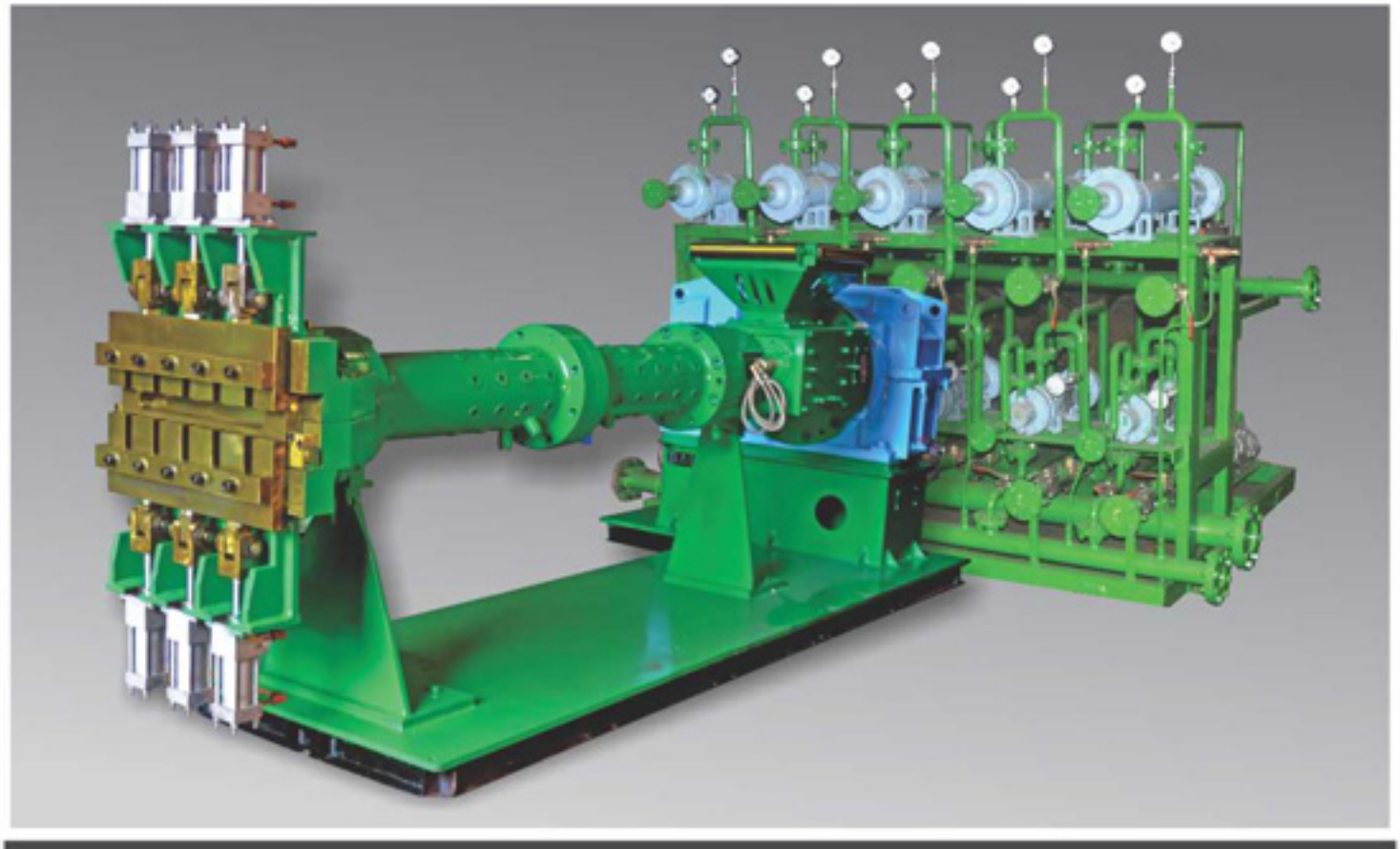
- Hot Feed Extruders having 4 ½", 6", 8", 10" sizes with Die Heads, Motor and Controls.
- Cold Feed Extruders having 90mm, 120mm, 150mm, 200mm & 250mm in Pin/Plain configuration with Die Head, Motor , Controls and Temperature Control Units
- Roller Die (Dump) Extruders having sizes 8.5" x 13", 15" x 18", 18" x 21" and 21" x 24 with Sheeting Calender



8" Hot Feed Extruder with Dual Head

Dump Extruder

15” x 18” Roller Die Dump Extruder



150 mm Cold Feed Extruder With TCU

MIXING MILLS

Bainite Mixing Mills (plain barrel or cracker) are used

- As dump mills below the internal mixer for compounding and sheeting out
- as warm up and feed mills for calender and extruders
- for re-mixing
- for plain compounding and mixing

The compounds may be of rubber, plastic / polymer or tile compound. Bainite Mixing Mills are sturdy enough to mix newer and tough compounds in a silent, trouble-free, smooth manner and are very durable and reliable in operation. All our mills are manufactured with rigidity in selection of materials, machining and strict inspections at various manufacturing stages as per rigid international standards to ensure customer delight.

Rigid and reliable construction

to mix newer and tougher compounds.

- Special design at necks to withstand high-impact loads.
- Frames & Caps are fabricated.

Long Service Life

from minimum wear

- Bearing bushes are centrifugally cast from wear-resistant copper alloy
- Connecting gears are of special alloy steel and are flame hardened leading high durability

Trouble free maintenance

Precise Heat Transfer

Rolls (of alloy chilled Cast Iron & uniform wall-thickness) with large cooling pockets restricts heat build-up in compound during mixing. Cored or Peripherical drilled Rolls are offered

Silent & Vibration Free

Single beam base structure makes mill silent and vibration free.

Effortless Operation

Manually or Motorized or Hydraulically Operated Nip adjustments with numerical controls available

Quick Installation

Mills with Vibro mount needs no foundation or time consuming installation procedures

Low Power Consumption

Mills with antifriction roller bearings save power.

Range

16" x 42", 22" x 60", 26" x 84" and 30" x 100"

Safety Features

- Air operated brake mechanism between motor and gear box. Easily activated either by pulling an overhead wire or pressing a safety bar with chest.
- Bearings fitted with an alarm system to caution you when temperature shoots up

Other Options

- Guides with Pneumatic Lifters as options and
- Mills with Stock Blenders both Motorized and Hydraulically operated on top of the Mill
- Bull Gear Drive or Direct Drive or Individual Drives
- Mills with one roll fluted or corrugated (cracker mill) and other roll plain offered for breaking cold sheets

84" Mixing Mills With Stock Blender

CALENDERS

Bainite Calenders are specially designed for frictioning of fabrics, single or double coating of fabrics, and sheeting applications. They are custom designed precision machines available with two, three or four roll configurations in different diameters and lengths, for rubber and plastic polymer industries.

Design parameters are determined by type of product, specific gravity, PLI, widths, thickness, temperatures, accuracy and productivity. Sophisticated Calenders with self-aligning roller bearings cross axis or roll bending mechanism, preloaders, direct drives, with motorized nip adjustment, etc are offered for precision products

Rigid Construction

calender housing are heavy-duty sturdy box type from fabricated steel and rolls are of chilled cast iron (or SG iron)

Efficient Heat Transfer

through peripherally drilled rolls when running at high speed and temperatures

Wrinkle Free Sheets

from highly precision-ground super finished rolls with accurate degree of concentricity& profile

Long Service Life

from minimum wear and tear, as roller bearings are centrifugally cast from special bronze alloy

Consistent Quality

Cross Axis adjustment of the rolls offset roll bend and achieves uniform thin sheet at high PLI

Safety

emergency switches at convenient points as per international standards.

- Roll Bending Device
- Preloading mechanism for Rolls
- Hydraulic cushion (Splice Relief)
- Changing device for profile sleeves
- Calendar Drives of International Standards.

Accessories

- Material Guide Checks
- Edge Trimming Device
- Centralized Grease Lubricating System
- Roll Grinding & Polishing Devices
- Associated Auxiliary Equipment

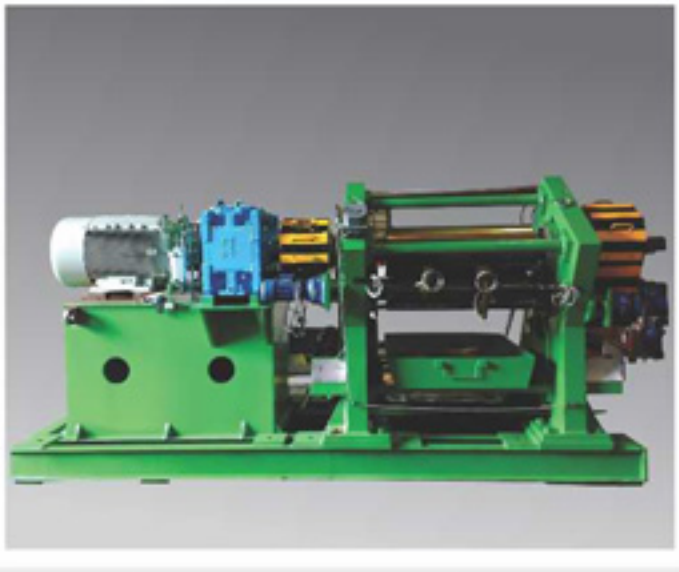
Configuration

We offer Calenders in inverted "L", "S", "I" & modified "Z" type configurations.

Wide Range

12" x 36", 16" x 42", 18" x 42", 18" x 48", 18" x 54", 24" x 68", 24" x 72", and 26" x 84"

3 Roll Vertical Calender



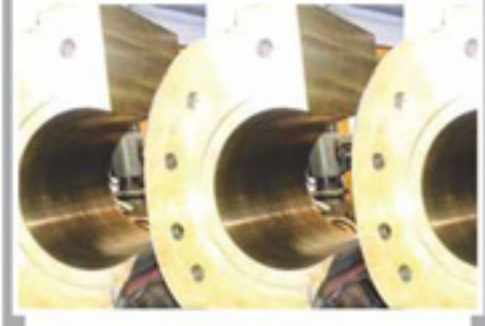
2 Roll Cushion Calender

SPARES & PERIPHERAL EQUIPMENT

Linear Actuator

End Frames

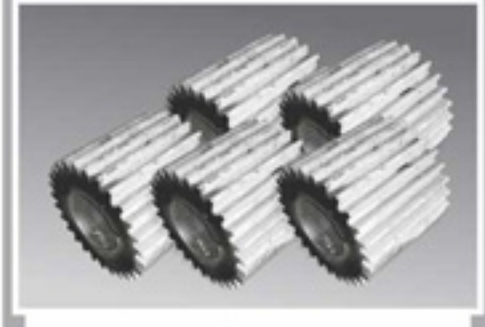
Rotors



Chamber

Batch - Offs

Screws & Barrel

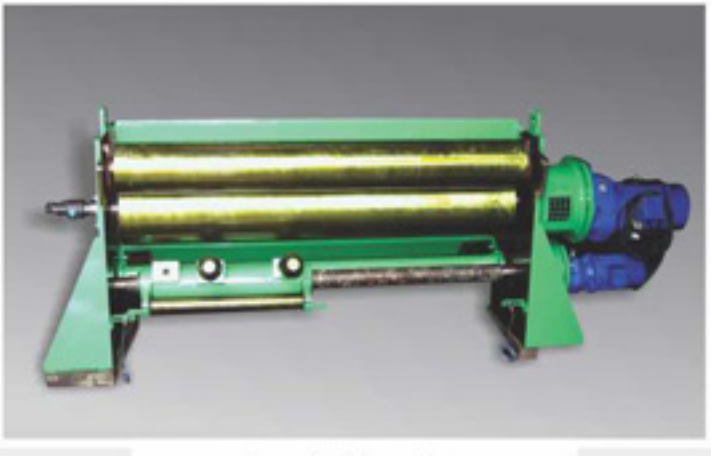


Gears

Tube Head

5 Zone TCU

Our quality solutions has prompted even overseas companies to turn to BAINITE for their requirements of spares & ancillary parts. Today, the company supplies a range of spares to match existing equipments, in addition to a line up of ancillary units like cooling drum assembly, heating drum assembly, tension stands, stock blender units for mills and various special purpose machines. Bainite also manufactures plugless rotors with special collapsible core and with configuration of 2 wing or 4 wing, in graded low carbon or alloy steel compositions.



Stock blender

Sheet Feeder

BAINITE Make Sheet Feeders come with high performance curved profile cutter made of hardened special alloy.

The sheet feeder, designed for effortless installation onto your existing mixing mill (or Batch Mixer) line, replaces manual labor with automatic feed, increases efficiency and improves the mix quality through better dispersion of uniformly cut rubber sheets up to 24mm thickness. Its hugger belt provides continuous positive feed for sheets up to 800mm width. The conveyor is driven by a 2.2KW, AC motor while a 7.5KW gear motor with VFD drives the cutter.

Sheet Feeder

RECONDITIONING & REPAIR SERVICES

The Company offers a spectrum of rebuilding / reconditioning services to clients who wish to rebuild their machinery after a fixed period or after the conclusion of the specified number of clearances. While rebuilding and upgrading such machine, the company conducts a close scrutiny of existing design characteristics. With well-equipped drawing and engineering facilities, the company uses latest technology to upgrade machines for higher mechanical strength & thermal efficiency.

Reconditioned 270 L Mixer Body

PROMINENT CUSTOMERS

- MRF Limited
- Birla Tyres
- CEAT Ltd
- BKT
- Apollo Tyres
- T.M. Tyres
- TVS Srichakra
- Modi Rubber Ltd
- Bridgestone India
- Elgi Tyre & Tread
- Ralson India Ltd
- Indag Rubber
- Rub-Tech Industries
- South Asia Tyres
- Rado Tyres
- Aishwarya Treads Pvt Ltd
- Glenrock Rubber Products Pvt Ltd
- Inarco
- Speedways Rubber Ltd
- Unipatch Rubber Ltd
- Dunlop India Ltd
- Trelleborg Lanka Limited
- Loadstar Pvt. Ltd, Sri Lanka
- Elastomeric, Sri Lanka
- Kinetics, Sri Lanka
- Richard Pieris, Sri Lanka
- Ceat Kelani, Sri Lanka
- Continental Tires, Germany
- Alliance Tires, Isreal
- Pelmar Engineering, Isreal
- Schieffer Magam, Isreal
- Amiantit Rubber, Saudi Arabia
- Hercules Rubber, Singapore

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