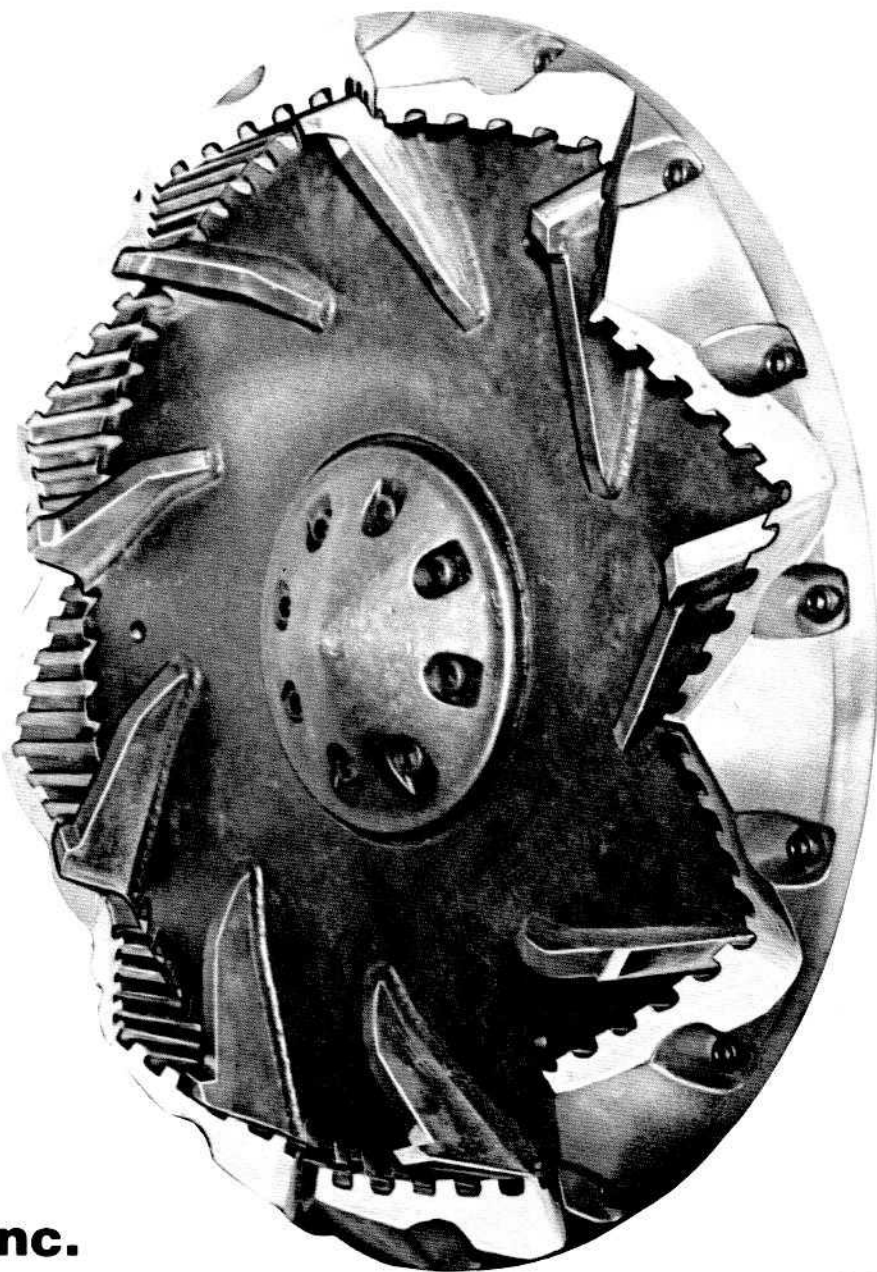


*BOLTON-EMERSON
HIGH PERFORMANCE*

Tornado II



B Bolton
Emerson, Inc.

BEC-2000

Tornado II Pulper...

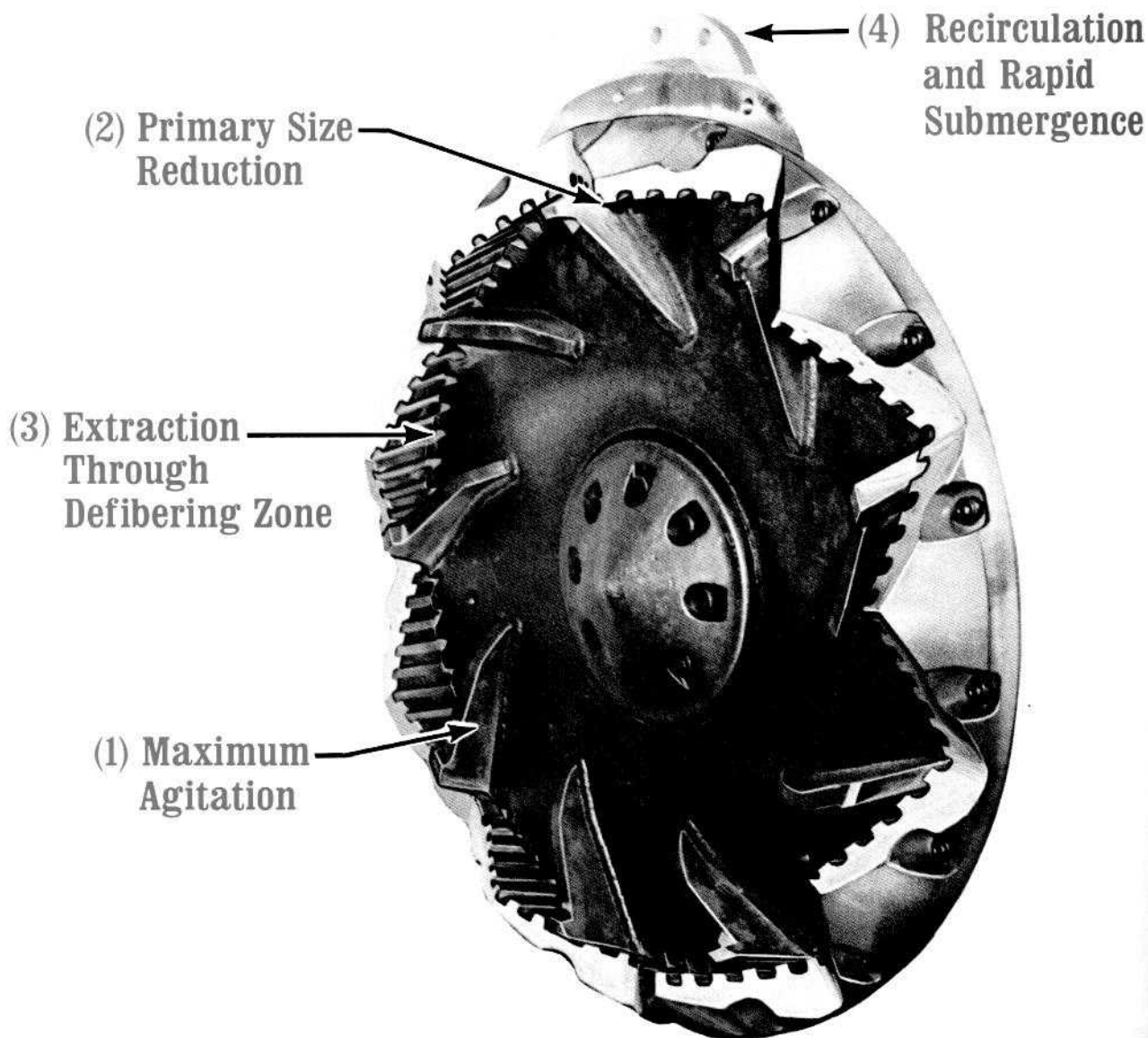
has been developed to handle two major defibering jobs that are impossible or prohibitively expensive with conventional pulpers.

"IMPOSSIBLE" RAW STOCKS ECONOMICALLY PROCESSED —

Tornado II meets the growing need for pretreating of difficult-to-defiber raw stocks such as cotton, hemp, flax, synthetic fibers for a variety of products such as currency paper, disposable garments, nonwovens, synthetic papers, etc.

**"INDESTRUCTIBLE" PRODUCTS
RECOVERED, Saves Raw Materials,
Disposal Costs and Avoids Ecological
Problems —** Tornado II recovers waste from products previously considered indestructible or uneconomical to recycle such as electrical insulation papers, gasket stock, map paper, milk carton stock, shoe board, tea bag paper, wet strength papers, glassine, press board, cup stock, etc.

Tornado II is an entirely new, extremely rugged, mill proven pulper with a unique rotor/stator design that performs four distinct functions simultaneously: (1) agitation - to insure homogenous treatment; (2) primary size reduction - to quickly convert large slabs to slurry form; (3) extraction - to insure complete defibering; (4) recirculation - for maximum efficiency and positive submergence. These design features make Tornado II a match for the most demanding defibering applications.



MAXIMUM AGITATION

Nine-vane rotor design and specially contoured stator lobes provide positive agitation, no dead spots, and insures that stock is immediately directed to the pulping unit for processing in minimum cycle time. The conical interface of rotor and stator creates a pressure increase across the rotor to provide tremendous pumping action and positive flow of stock through the defibering zone.

PRIMARY SIZE REDUCTION

Oversize slabs and difficult-to-defiber scrap materials are rapidly broken up by Tornado II's unique angle of acquisition between rotor and stator. The scissor-like intersection of the leading edges of the primary rotor vanes and stator lobes provides positive gripping of incoming material for initial size reduction. Valleys between the stator lobes enable oversize pieces to escape thereby avoiding any possibility of plugging the attrition zone. These oversize pieces are quickly returned to the rotor/stator where they are processed on subsequent passes and thus quickly homogenized.

EXTRACTION THROUGH DEFIBERING ZONE

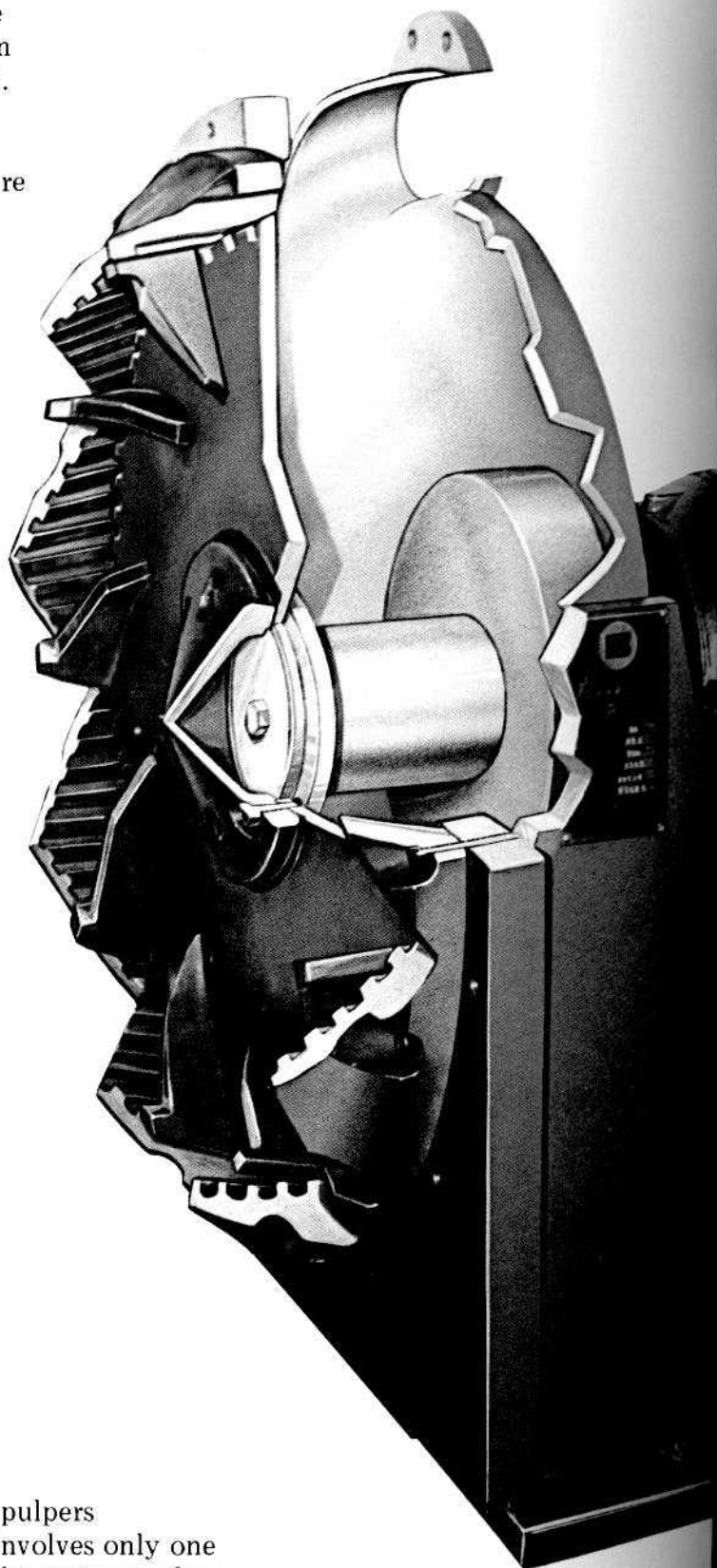
The conical interface of the rotor and stator with higher velocity at the larger diameter of the defibering zone results in a pressure increase that positively forces stock through the defibering zone at 600 GPM. Tremendous pumping action and high rate of stock flow through the defibering zone plus stock recirculation for repeated treatment provides complete fiber separation. Operation at close rotor/stator clearances of .010"-.015" provides maximum defibering without fiber degradation. Externally adjustable rotor permits selection of optimum pulping performance.

RECIRCULATION and RAPID SUBMERGENCE

The high rate of stock passing through the defibering zone is recirculated through an exterior loop, located behind the rotor, and delivered back to the pulper tank, providing positive submergence of loose broke and large slabs by forcing the furnish downward to the rotor. Recirculation also promotes maximum homogeneity.

SYMMETRICAL ROTOR/STATOR DESIGN MINIMIZES WEAR

Tornado II overcomes the limitations of conventional pulpers in both design and operation. Its simple clean design involves only one moving part. Symmetrical nine-vane rotor and nine-lobe stator produces perfect balance of forces. Close clearance pulping is thus maintained without interference thereby maximizing rotor/stator life.



Tornado II

Specifications

Rotor Diameter:
36"

Rotor Drive:
V-belt

Connected HP/RPM:
300-350/1200

Rotor Speed:
380-430 RPM

Batch Capacity:
1000-4000 lbs.

Extraction Plate Hole Diameter:
1"

Shipping Weight:
4600 lbs.

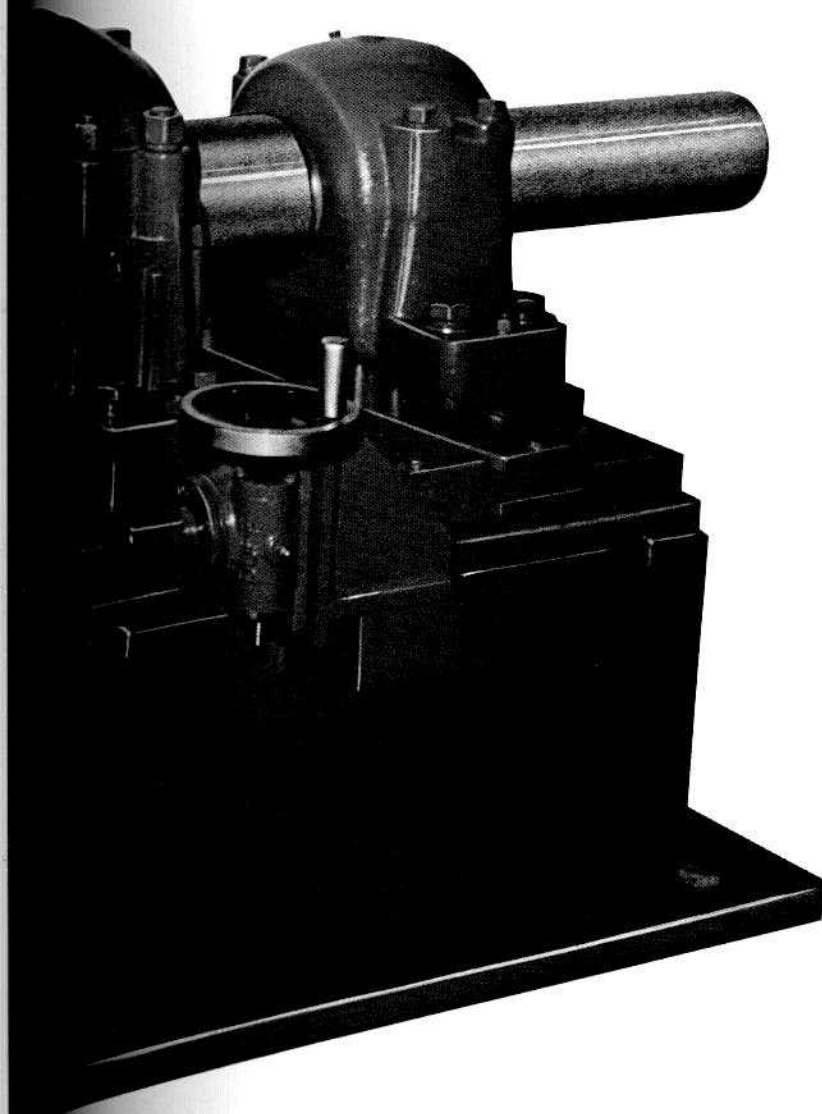
Tank Size:
7½' ID, 9' high

Tank Capacity:
397 cu. ft.

Tank Weight - Shipping:
3400 lbs.

Tank Weight - Flooded:
24,400 lbs.

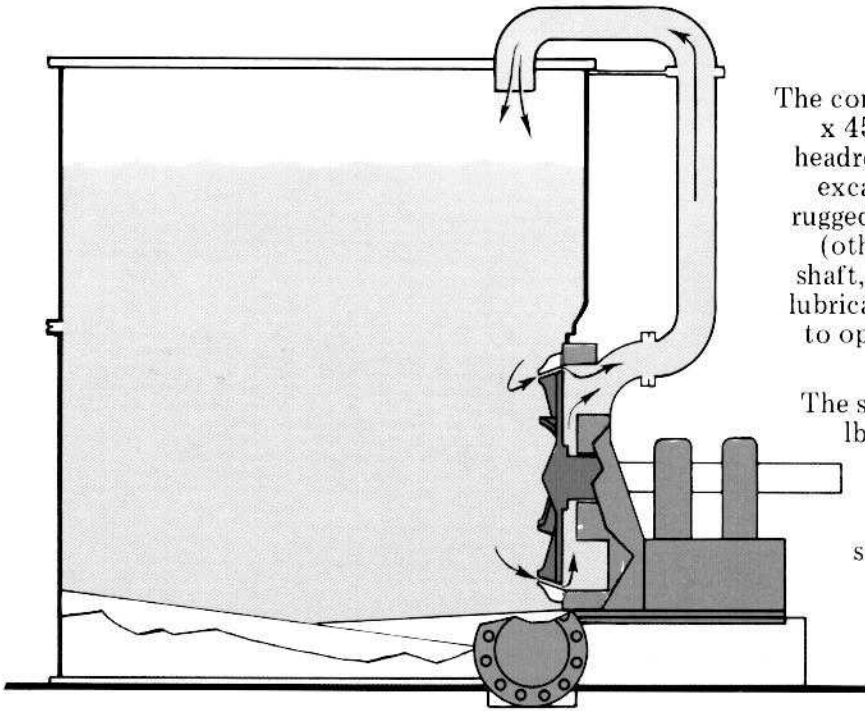
Production Capacity:
Depends on application. Please
send small stock sample for
evaluation and estimate of produc-
tion rate for your application.



SPACE SAVING, RUGGED CONSTRUCTION, MINIMUM MAINTENANCE

The compact Tornado II side entering rotor (50" high x 45" wide x 60" deep) permits installation where headroom is limited. Installation costs are low as no excavation is required. Tornado II is an extremely rugged machine with 36" diameter NCV rotor/stator (other alloys available). 4340 alloy steel oversized shaft, ceramic coated in the packing area, and grease lubricated spherical roller bearings enable Tornado II to operate 'round-the-clock' on the most demanding defibering jobs with minimum maintenance.

The standard pulper tank for Tornado II has a 1000 lb. batch capacity at 5 percent consistency. The carbon steel tank (stainless steel tanks optional) has a 7½' inside diameter and 9' height, 12" ASA flanged discharge and carbon steel extraction plates with 1" extraction holes. Tanks are supplied in two pieces for ease of transport, handling and installation. Existing pulper tanks may be suitable for Tornado II conversion depending on specific application requirements.

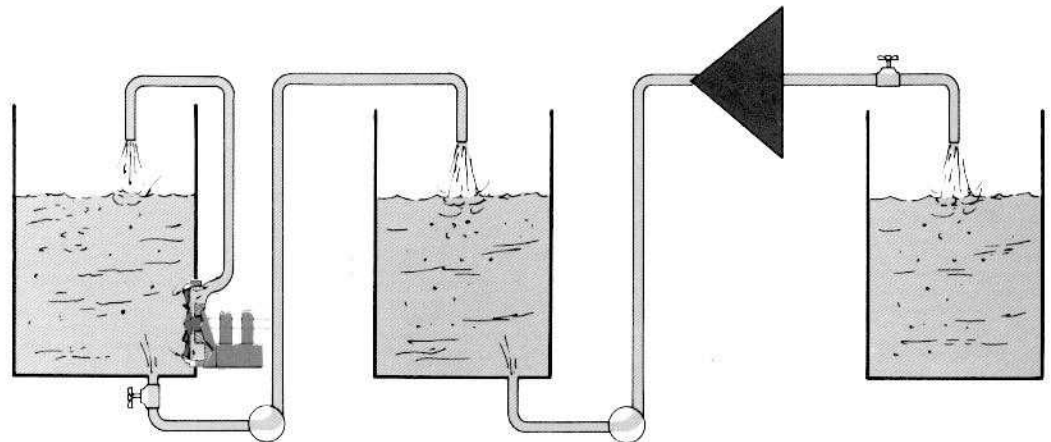


GOOD RETURN ON ENERGY INVESTMENT

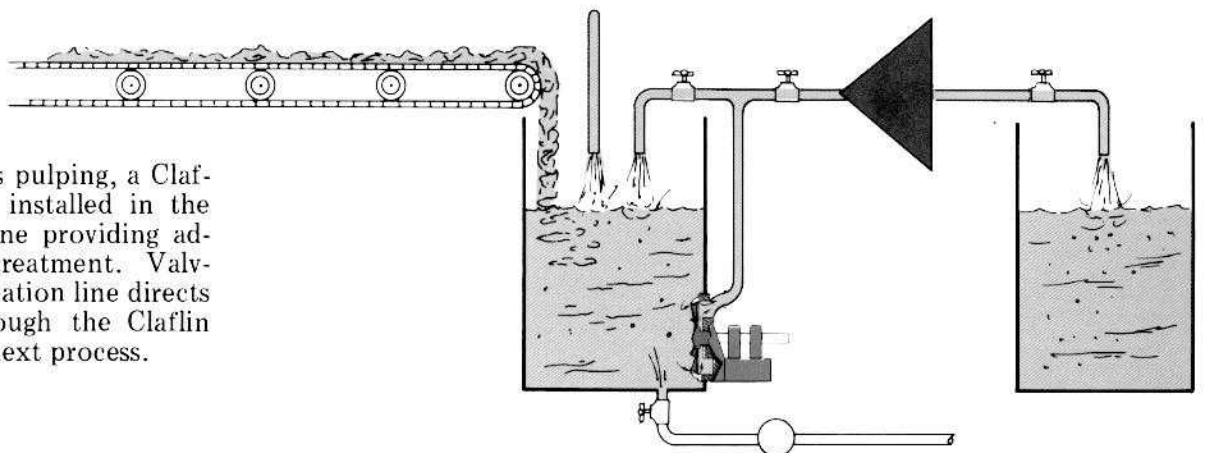
Tornado II is powered by a 300 to 350 HP motor at 1200 RPM. The rotor is operated at 380 to 430 RPM [corresponding to peripheral speeds of 3580 to 4050 FPM] depending on application. Power demand is at maximum during loading and becomes progressively less as the material being pulped is homogenized. Throughput rate and energy requirement depend on type of material processed.

AUTOMATIC PULPING/ REFINING SYSTEMS

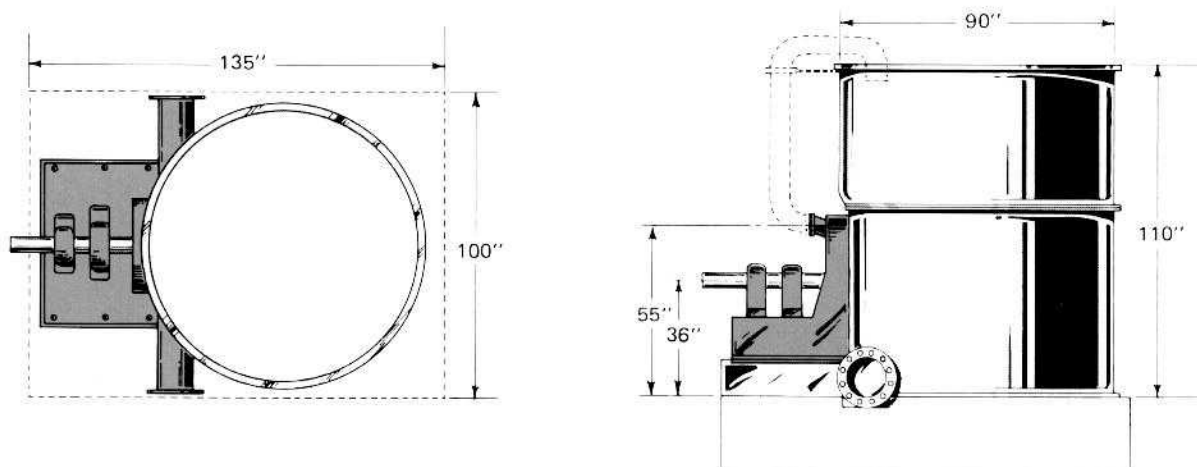
For batch operation, stock is pulped to desired specifications, then pumped to a holding chest and on to a Claflin finishing refiner.



For continuous pulping, a Claflin Refiner is installed in the recirculation line providing additional fiber treatment. Valving the recirculation line directs the stock through the Claflin and on to the next process.



DIMENSIONS



WARRANTIES & BUYER'S EXCLUSIVE REMEDIES

Bolton-Emerson, Inc. warrants that the machinery and/or goods manufactured by Bolton-Emerson, Inc., shall be **merchantable**, that is, that they are made of first class materials and workmanship in conformance with standard practice in the trade, that they meet the description of the product on the face of our quotations and sales orders and are fit for the ordinary purposes for which such machinery and/or goods are used.

EXCEPT AS PROVIDED IN THE PRECEDING PARAGRAPH WE MAKE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION OF THE MACHINERY AND/OR GOODS ON THE FACE OF OUR QUOTATIONS OR SALES ORDERS.

Buyer's remedies, within the guarantee period, with respect to any product, or parts thereof, which are found defective in material or workmanship or which otherwise fail to

conform to the contract description or any warranty, express, or implied, shall be **limited exclusively** to the right to replacement or repair f.o.b. Lawrence, Massachusetts, or at our option, to refund of the purchase price. IN NO EVENT SHALL WE BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY NATURE WHICH MAY ARISE IN CONNECTION WITH SUCH PRODUCT.

On all outside purchased equipment and accessories, Bolton-Emerson, Inc. will request the manufacturer or distributor of outside purchased equipment and accessories to extend the original manufacturer's warranty to the buyer. However, Bolton-Emerson, Inc. itself makes **no express or implied warranties or representations as to outside purchased equipment and accessories not of Bolton-Emerson, Inc. manufacture, including without limitation its merchantability or its fitness for any particular purpose of the buyer.**

Bolton Emerson, Inc.

Creating The New Technology

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