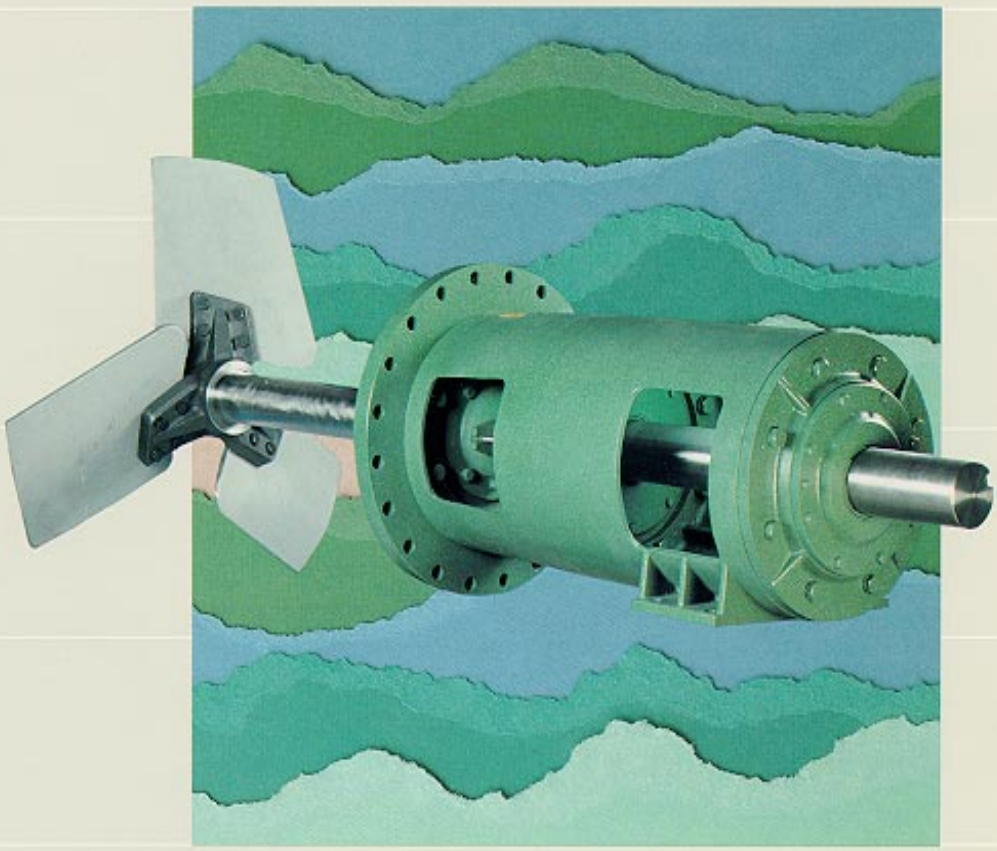
VS Series
Paperstock Agitators



Getting The Job Done Right

LIGHTNIN

B-544

RUGGED AND EFFICIENT PAPERSTOCK AGITATORS FROM LIGHTNIN

Take The Total Approach To Pulp And Paper Agitation

At Lightnin, we start with a specially designed paperstock impeller that delivers 30% more flow for the horsepower than anything else on the market.

We couple it to a shaft that optimizes size and strength specifically for your process.

And we drive it on bearings that minimize wear, maximize life, and simplify maintenance for you.

We know it takes more than just a big shaft to give you rugged, reliable performance. We know it takes the proper combination of process knowledge and mechanical integrity to give you strength *and* efficiency.

More flow, rugged shaft, better bearing design—all standard, to handle all severe duty applications. That's VS series paperstock agitators from Lightnin. And what we recommend, we guarantee. *100%.*

The POWER:*FLOW* Approach

Agitate At All Service Levels

Define your application for us. We apply over 60 years' process expertise to size the optimum impeller, shaft, and motor horsepower for your chest or tower. We have the most extensive mixing labs in the world to verify your process if needed.

Once your process is defined, we're in business. We build Lightnin VS agitators to handle severe duty applications. We factor torque, fluid forces, and severity of service into our design to accommodate *any* stress level and shock load in your chest.

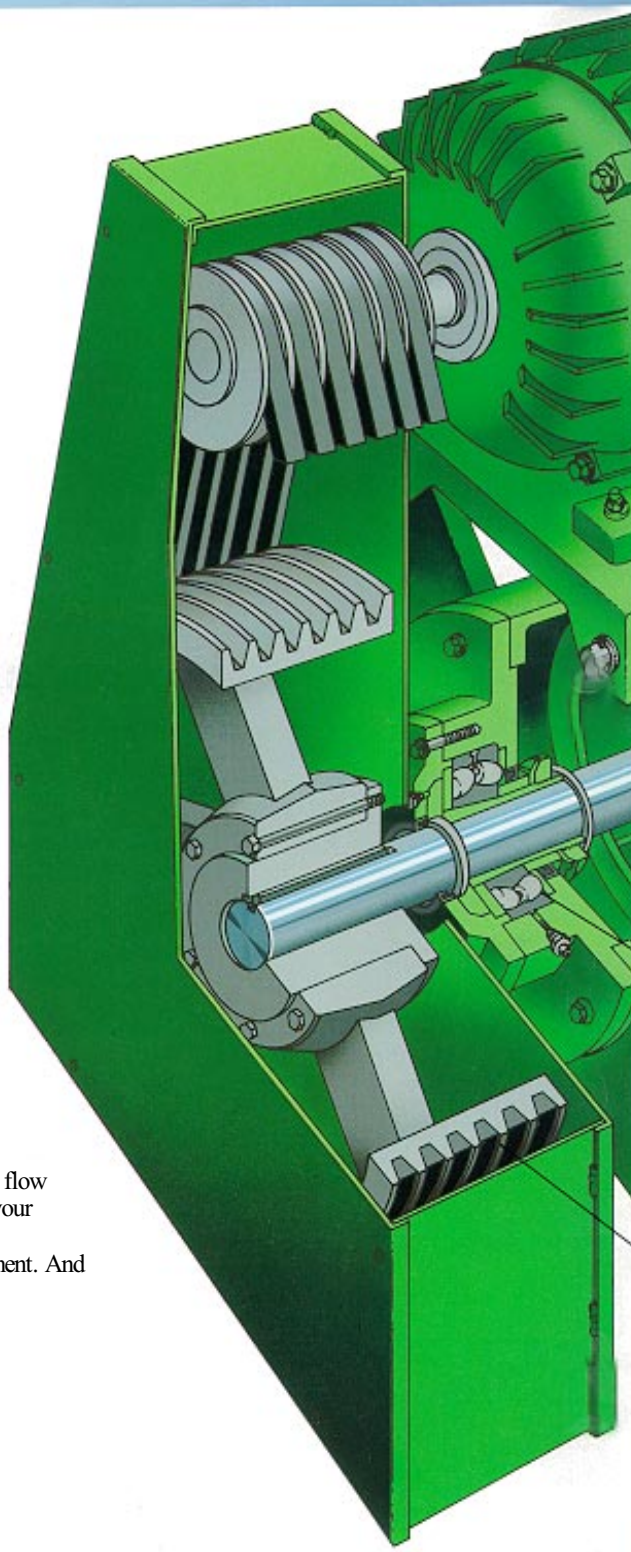
You never have to worry about the mechanical integrity of Lightnin VS agitators.

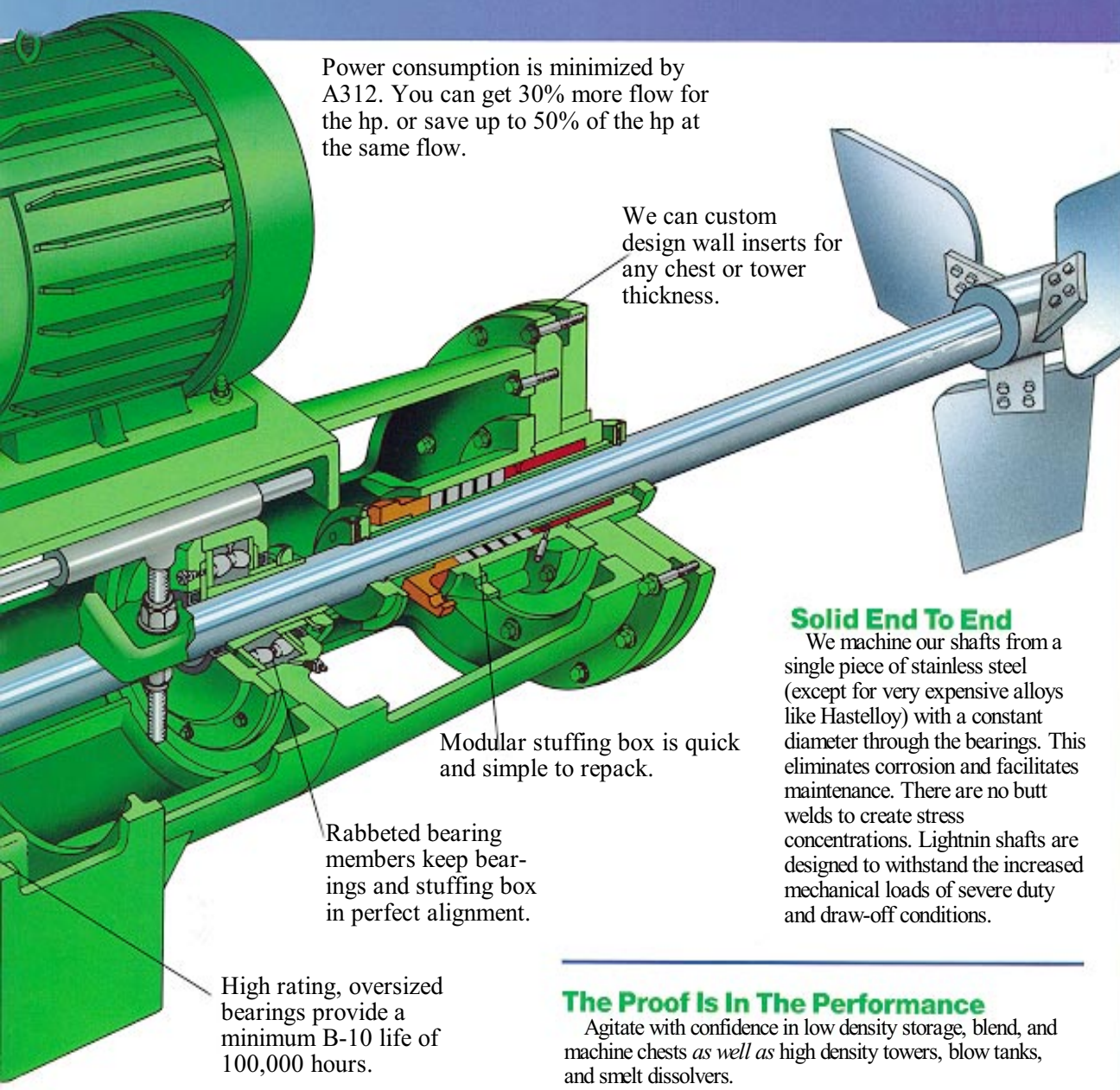
Maximize Flow

The A312 impeller maximizes axial flow. There's no radial flow component to dissipate energy and add unnecessary loads to your process.

As a result, A312 lowers fluid forces, for less bending moment. And A312 lowers torque, for less blade and shaft stress.

The result is maximum efficiency.





Power consumption is minimized by A312. You can get 30% more flow for the hp. or save up to 50% of the hp at the same flow.

We can custom design wall inserts for any chest or tower thickness.

Modular stuffing box is quick and simple to repack.

Rabbeted bearing members keep bearings and stuffing box in perfect alignment.

High rating, oversized bearings provide a minimum B-10 life of 100,000 hours.

Minimum 1.5 Service Factor V Belt Drive is standard. Gear Drive and High Torque Belt Drive (HTD) are optional.

Solid End To End

We machine our shafts from a single piece of stainless steel (except for very expensive alloys like Hastelloy) with a constant diameter through the bearings. This eliminates corrosion and facilitates maintenance. There are no butt welds to create stress concentrations. Lightnin shafts are designed to withstand the increased mechanical loads of severe duty and draw-off conditions.

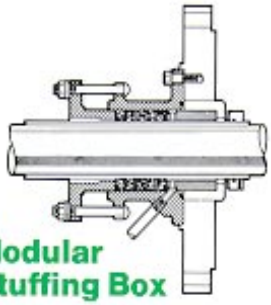
The Proof Is In The Performance

Agitate with confidence in low density storage, blend, and machine chests *as well as* high density towers, blow tanks, and smelt dissolvers.

When you combine Lightnin process expertise with our superior mechanical integrity, you get an agitator that will operate under *all* conditions—even draw-off, where fluid forces skyrocket.

Other agitator makers may recommend you shut their units down during draw-off, to prevent against failure or breakage. With Lightnin, you keep on running. That's proof of truly rugged design.

A312 blades are bolted, not welded, to simplify side entry installation. Locking plates on *both* sides insure a secure impeller assembly.

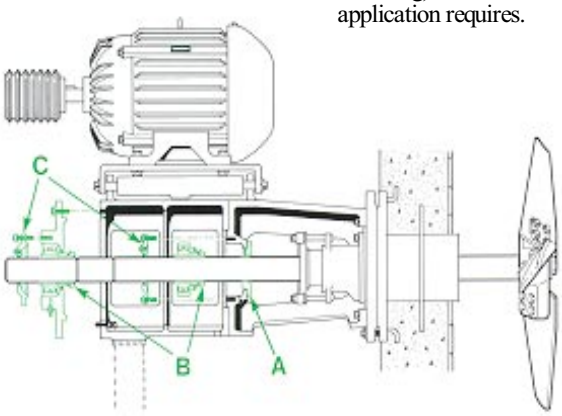


Modular Stuffing Box

Lightnin stuffing box is removable to simplify inspection, repacking, and replacement. Flow rotometer supplies flushing water to lubricate and cool the shaft. Shaft hard surfacing or renewable shaft sleeve (with or without surfacing) are available as your application requires.

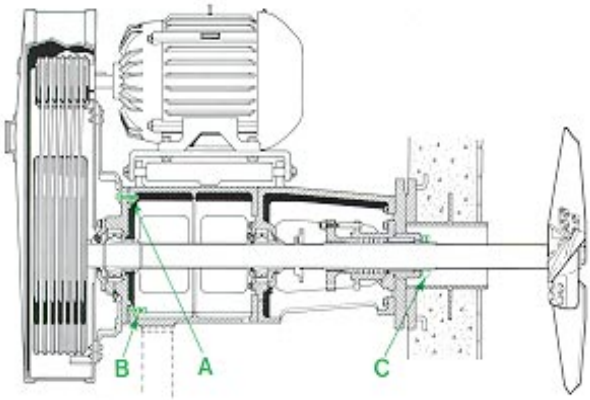
Bearing Adapter Sleeves

Lightnin adapter sleeves facilitate bearing removal and maintenance. Cadmium plating protects against corrosion. There are no pressedon bearings to heat up and hammer off. With the sleeves, all wear takes place on the bearing components, not the shaft. And bearings are oversized to run cooler, last longer. The net result is minimal downtime.



Simple Bearing Replacement

You can change your bearings without removing the shaft or draining your chest. Slinger (A) provides two points of support while you loosen the bearings from the adapter sleeves (B) and slip them off the shaft, complete with bearing retainers (C).



Two Step Shutoff

When you need to repack the stuffing box or change your bearings, simply loosen the bearing housing bolts (A) and tighten the jacking screws (B). This engages the shutoff (C) and your chest is sealed.

THE A312 ADVANTAGE

The A312 impeller combines our patented A310 flow technology with a thicker blade design to accommodate the severe duty pulp and paper requires.

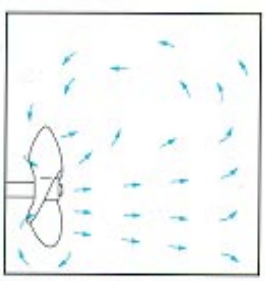
The result is the strong *and* efficient A312 paperstock impeller. Its laserbased design helps create 30% more pumping capacity for the horsepower than any other impeller on the market, including other so-called "high efficiency" impellers.

The A312 laser design means less energy is lost, so your stock can roll over more efficiently. It means lower fluid forces, for less bending moment. It means reduced torque, for less stress on both shaft and blade.

Higher Consistency, Lower Power Draw

A Southern kraft mill experienced wide swings in consistency with their short retention time blow tank. The optimum flow of A312 eliminated the swings, even with consistency as high as 6%. The new Lightnin VS agitator accomplished the job with 50 hp *less* than a standard agitator would require.

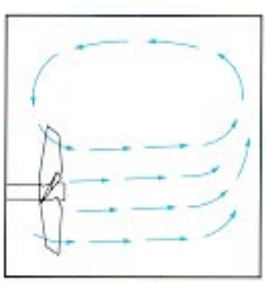
A mid-Atlantic kraft mill had the same problem in a high density tower. Again, A312 solved the consistency swings and a 150 hp Lightnin agitator replaced the 200 hp unit previously in use.



Conventional Paperstock Impeller

Conventional Paperback Impeller
Lines indicate flow direction, with length proportional to velocity.

Conventional paperstock props create a radial flow component which wastes energy and adds higher fluid forces and stress to the agitator blade and shaft. To compensate for these higher forces, larger shaft diameters and heavier props are required.



Lightnin A312 Impeller

Lightnin A312 Impeller
Lines indicate flow direction, with length proportional to velocity

The true axial flow of the A312 impeller eliminates radial flow. This results in maximum flow efficiency as well as lower fluid forces, less torque, and less stress.

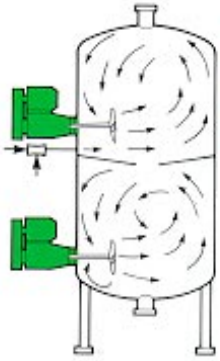
LIGHTNIN ORIGINALS

The A312 paperstock impeller is just one in a long line of innovative products we've introduced during our 60+ years in the business. Here are some Lightnin original ideas that have become mainstays of the pulp and paper industry.

For further information about these products and rugged, efficient Lightnin paperstock agitators, contact your local Lightnin sales engineer. See the Yellow Pages under Mixing Equipment. Or write us at the address below.

Reduced bottom storage towers and blow tanks

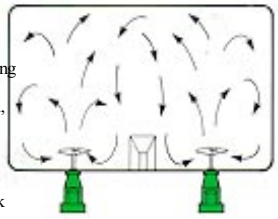
The reduced bottom design was developed by Lightnin to maximize agitator performance, reduce energy costs, and minimize capital construction costs. This efficient design concept has been applied successfully to towers containing over 1000 tons of stock.



Multi stage high intensity chlorine premixer

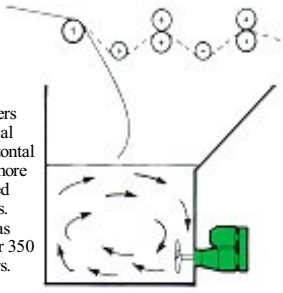
The Lightnin chlorine premixing system ensures that each fibre is uniformly contacted with chlorine.Thus a reduction in the size of the chlorination tower is achieved, chemical usage is kept below 5%, and residuals are minimized. For example, three minutes of intensive action in a Lightnin premixer in a 750 ton/day mill reduced the retention time of the chlorine tower to 10 minutes.

Stock chest agitation without midfeather walls



The Lightnin chest agitation system provides complete blending for better uniformity, improved quality and increased production, without the use of costly midfeather walls. Thus chest construction costs are reduced considerably. Very large chests containing over 150 tons of stock at 5% bd consistency have been agitated successfully by the Lightnin system. The performance of existing midfeather chests can be upgraded by the installation of a Lightnin system.

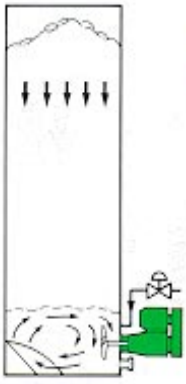
Propeller type couch and press pit pulpers



Lightnin couch and press pit pulpers offer considerable savings in capital cost and maintenance over a horizontal cross shaft arrangement, and the more reliable pulping eliminates plugged stock pumps and costly shutdowns. Press broke of 45% consistency has been repulped from machines over 350 inches wide using Lightnin pulpers.

Chlorination towers

The ideal chlorination tower subjects each pulp fibre to the same amount of chemical bleach for the same length of time. This condition is closely achieved with the Lightnin plug flow system which uses a side entry agitator near the bottom of the tower, and a specially designed top entry agitator A well defined horizontal interface is produced which eliminates the possibility of stock channeling due to inlet hydraulic conditions. The plug flow is maintained throughout the tower with the second agitator providing uniform effluent conditions.



High density downflow bleach towers

Eliminating the costly circulator inserts, centre cone and dilution nozzles of older bleach tower designs, the Lightnin downflow tower has adopted the efficient and economical concepts of the high density storage tower. The Lightnin tower design provides uniform stock consistency with less energy input, eliminates clogged pump suction lines and accurately locates the stock interface. The design concepts have been applied to towers as large as 22 feet in diameter. Typical savings in capital costs in a 750 ton/day bleach plant using the Lightnin design would amount to over $100,000.

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LIGHTNIN

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LIGHTNIN Sales Engineers are located in principal cities around the world.