

Duramax® Ultra-X®

High Performance Compression Packing

- ▷ Engineered Specifically for Heavy-Duty Marine Service
 - Stern Tube Stuffing Boxes
 - Bulkhead Stuffing Boxes
 - Rudder Stuffing Boxes
- ▷ 300% Lower Friction than Flax Packing
- ▷ Superior Thermal Conductivity
- ▷ Outlasts Flax more than 5 to 1



PRODUCT INFORMATION AND SELECTION GUIDE

Duramax Marine® is an ISO 9001:2008 Certified Company

DURAMAX MARINE®





The Ultimate Marine Stuffing Box Packing.

Duramax® Ultra-X® is a unique high-performance, non-asbestos, braided packing specifically engineered to meet the demands of marine propulsion. Its excellent lubricity and high thermal conductivity keeps shafts running cool at all speeds. Unlike flax packing and other packing materials, once Ultra-X® is installed you never need to worry about it again, virtually eliminating maintenance. It requires no grease, stays flexible and pliable, will not harden, swell or become brittle – virtually eliminating costly damage caused by extensive shaft scoring and wear.

Key Features of Duramax® Ultra-X® Packing Material

- ▶ **Dissipates frictional heat:** Over five times more thermally conductive than flax and PTFE
- ▶ **Grease-free installation:** Self-lubricating and conformable, easy to install and remove after use.
- ▶ **Virtually eliminates shaft scoring:** Stays pliable, never hardens or becomes abrasive, even at high shaft speeds
- ▶ **Leakage practically eliminated:** Doesn't shrink, keeps bilge drier and free of oily contaminants
- ▶ **Lasts over 5 times longer than other packing:** Doesn't get consumed in use, holds its shape and dimension

Engineered Specifically for the Marine Industry.

You can use Duramax® Ultra-X® with confidence knowing it is a product of Duramax Marine®, manufacturer of Johnson® Heavy-Duty Stuffing Boxes, the most recognized, highest quality stuffing boxes in the marine industry. Duramax Marine® is also the world leader in water-lubricated bearing technology. We keep your propulsion systems moving full steam ahead.

Designed for optimum performance in all marine stuffing boxes.

Duramax® Ultra-X® packing is engineered for optimal performance in all marine applications. It complements the operation of Johnson® Cutless® bearings and helps meet the demands of marine propulsion.

Lasts more than 5X longer than flax and PTFE packing.

Ultra-X® is designed to eliminate the high cost of packing failure. It will reduce your downtime and maintenance costs – not to mention eliminating expensive equipment replacement costs.



What is Duramax® Ultra-X® High-Performance Packing?

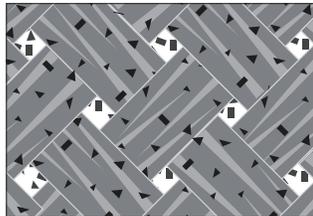


Imbided Graphite vs. Loose Blending of Graphite.

Duramax Marine® uses unique patented manufacturing technology to encapsulate graphite particles and impregnate specialized lubricants into expanded PTFE strands. It greatly outperforms competitors' packing that loosely blends graphite particles between the strands during the braiding process.



Imbided graphite in Duramax Ultra-X® Fiber



Loose graphite in standard PTFE braiding

Duramax® Ultra-X® is a braided hydrophobic fiber packing. Because of its composition and design it lasts more than 5X longer and outperforms all flax and PTFE packings in marine stern tube, rudder and bulkhead applications.

► **Expanded PTFE:**

Outperforms standard flax and PTFE

► **High tensile strength:**

Will not get consumed in use

► **Graphite imbided/silicone impregnated:**

Lowest friction of any marine packing

► **Self-lubricating:**

Virtually needs no water for lubrication

► **Stays pliable:**

Never gets brittle, hard or abrasive

► **High thermal conductivity:**

Over 5 times more thermally conductive than flax and PTFE

► **Grease-free installation:**

Easy to cut and handle. Conforms easily

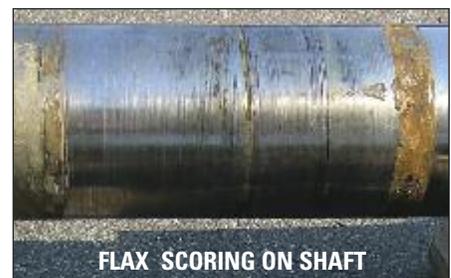
► **Lowlife-cycle cost:**

Virtually eliminates maintenance, shaft scoring & replacement

Eliminates Equipment Damage Caused by Other Packings.

Duramax® Ultra-X® is engineered so you will never experience packing failure that causes excessive shaft scoring. It always runs cool and always stays pliable. It never gets hard and abrasive, so expensive shaft repair or replacement is a thing of the past. Unlike flax, Duramax® Ultra-X® is not consumed in use, which means you don't need to constantly adjust the gland or add more rings of packing to maintain your seal. Ultra-X® eliminates the headaches associated with other type packing materials by lowering maintenance and operating costs thus reducing downtime.

There are competitors with lower priced "Look-alike" black PTFE fiber packing. Many of these look-alike packings use pure PTFE which is known for its thermal expansion. Besides having low tensile strength the thermal expansion of this material creates high heat and friction which results in significant shaft scoring and loss of seal. Duramax Ultra-X® will simply work as well or better than any other braided packing designed for marine applications.



Duramax® Ultra-X® eliminates excessive shaft scoring that causes leaking, packing replacement and equipment damage.

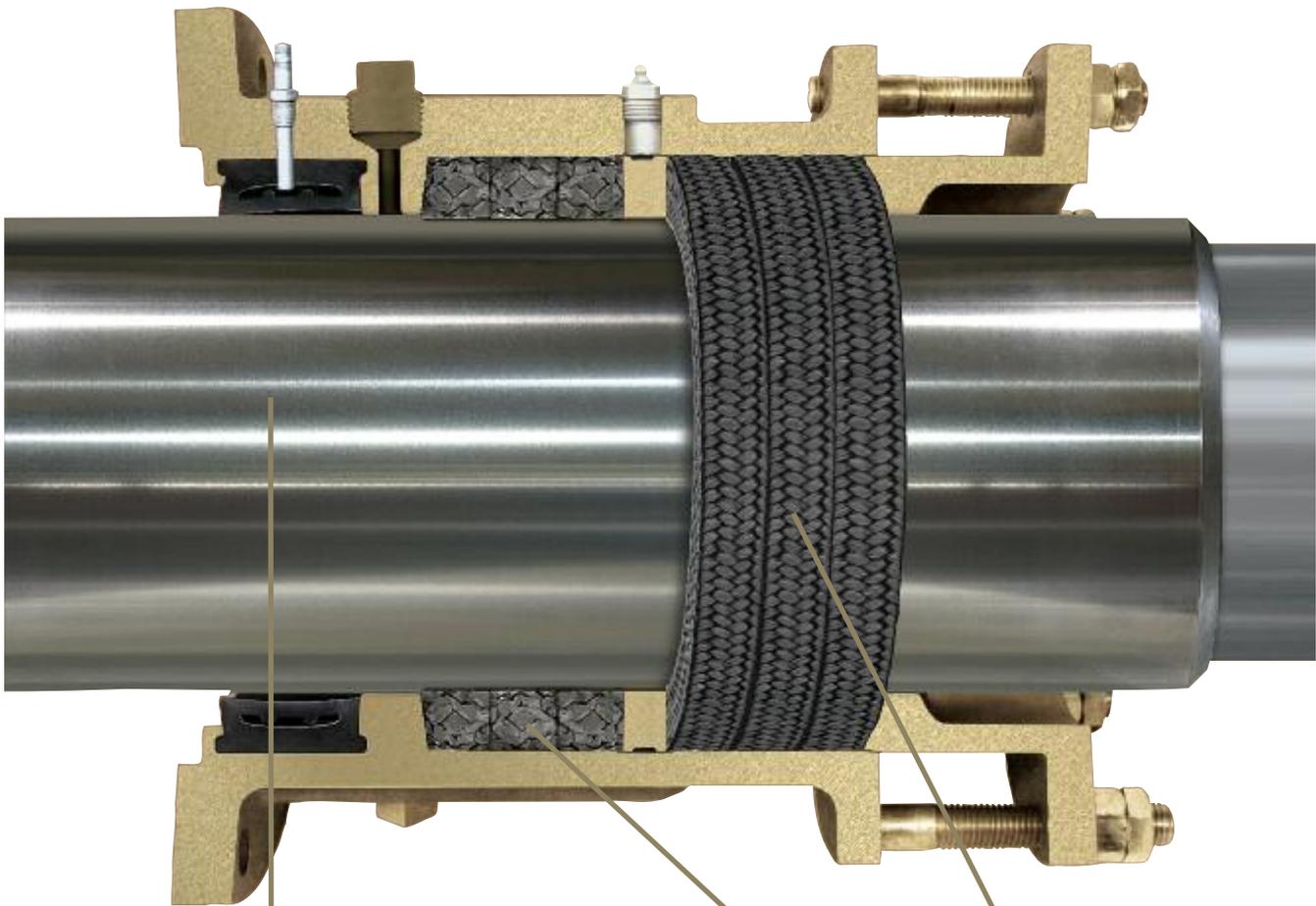
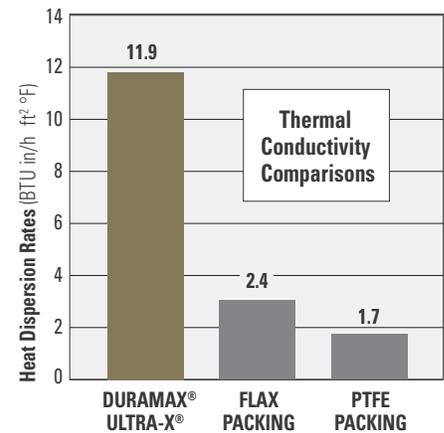
Always Runs Cool, Even at High Shaft Speeds.

Transfers frictional heat to stuffing box.

Duramax® Ultra-X® dissipates frictional heat from the shaft transferring it to the stuffing box, which functions as a heat sink, lowering the temperature of the shaft and packing at all shaft speeds. In contrast, flax packing acts as an insulator, trapping frictional heat that can cause shaft damage and loss of seal.



Duramax® Ultra-X® Packing transfers heat to stuffing box. **Flax packing** acts as insulator trapping heat to shaft.



Minimizes shaft wear and equipment damage.

Ultra-low friction Duramax® Ultra-X® always remains pliable. Flax and PTFE packing will harden, get brittle and consumed in use, resulting in shaft scoring and costly replacement. Abrasives will not embed into Ultra-X® packing unlike flax with its sticky lubricants which actually act as a holder for abrasives causing shaft damage.

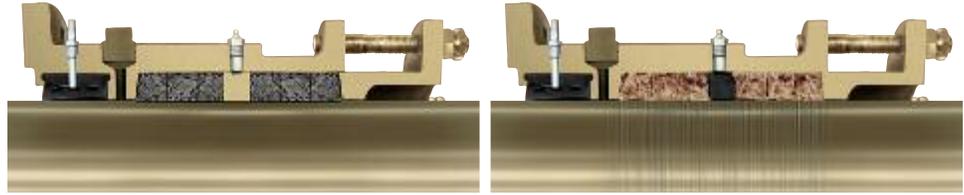
Practically eliminates a dripping stuffing box.

Ultra-X® experiences no shrinkage, keeps its shape and dimension, and requires virtually no water for lubrication. Keeps bilge dry and clean of oily contaminants.

Experiences no packing failure.

Duramax® Ultra-X® experiences no thermal expansion. It is not consumed during operation, so it never needs additional rings before the next scheduled haul out. This eliminates the need for constant gland adjustments.

Duramax® Ultra-X® VS. FLAX



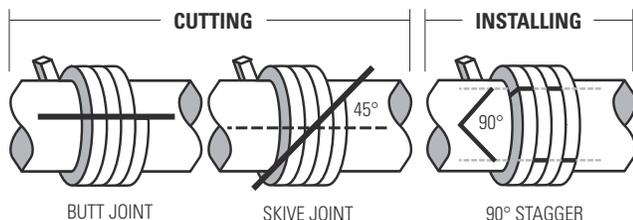
	DURAMAX® Ultra-X®	FLAX
Ease of Installation	Pliable, conforms easily for clean, tight seal	Messy to handle, cut and install
Lubrication	Self-lubricating, virtually no water needed	Requires water
Replacement	Stays flexible and pliable, easy to remove	Dries out, gets brittle, difficult to remove
Operating Condition	Stays pliable, non-abrasive	Hardens, becomes brittle and abrasive
Resistance to Overheating	Maximum temperature 550°F	Maximum temperature 150°F
Thermal Expansion	Virtually none	Will experience swelling
Leakage	Practically eliminated	Will experience leakage
Heat Dispersion	11.9 BTU in/h ft² °F	2.4 BTU in/h ft² °F
Environment	No oily contaminated water in bilge, no EPA issues	Needs holding tanks or remediation
Maintenance	Once installed, needs no maintenance	Need to add rings when consumed
Equipment Damage	Virtually eliminates shaft scoring and wear	Gets hard and abrasive causing costly damage
Longevity	Normally lasts until scheduled haul out	Consumed or destroyed at high shaft speeds

Easy Installation.

Easy to handle and cut.

Duramax® Ultra-X® is a welcome replacement for messy flax packing. It cuts cleanly and easily. Just cut the rings to the proper lengths and install with no grease needed. Ultra-X® does not require grease in stern tube applications where water is present. In bulk-head stuffing boxes it is recommended that grease is added to aid in lubricating the packing. Grease will not harm Ultra-X® packing.

To cut Ultra-X® packing to the proper length, wrap the packing on a mandrel that matches the shaft or use part of the shaft that is outside the stuffing box. Rings can be cut with butt (square) or skive (diagonal) joints. Joints of successive rings should be staggered – at least 90 degrees apart.



Conforms quickly for a leak-proof seal.

Duramax® Ultra-X® packing is soft and pliable. It conforms easily to the stuffing box gland and packing areas.

One adjustment, then never worry about it again.

Once Ultra-X® is in place, tighten the gland follower. After a short run-in period, make one adjustment - then never worry about it again. Ultra-X® will normally last until the next haul out, without much more than an occasional glance at its drip rate.

Easy to remove for repacking.

Unlike flax and PTFE that hardens and becomes brittle, Duramax® Ultra-X® isn't destroyed in use. It always stays pliable and easy to remove.

Trouble Free Operation.

Meets Environmental Requirements.

When using Duramax® Ultra-X® your bilge will be free of contaminants. It needs virtually no water for lubrication, and it doesn't shrink - practically eliminating a stuffing box drip. It makes it easy to comply with environmental requirements that regulate overboard pumping of polluted bilge water.

Ultra-X® Is the Most Versatile and Cost Effective.

Compared to other packing options, the life cycle cost of Duramax® Ultra-X® is much lower. With the high cost of shaft repair or replacement due to other packing failures, why settle for less. Durability, long service life, and consistent high performance makes Duramax® Ultra-X® your most cost-effective packing solution on the market.

Backed By Duramax Marine®.

Duramax® Ultra-X® will assure you the highest performance of any braided packing on the market today – whether it's in a Johnson® Heavy-Duty Stuffing Box or any other marine stuffing box you are currently using. Like all Duramax Marine® products, it is designed to reduce your maintenance costs, operating costs and reduce downtime – and is backed up by a team of Duramax Marine® product experts to answer any questions or solve your maintenance problems.



Available in 18 Standard Sizes.

Size*	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"	1-3/8"	1-1/2"	1-5/8"	1-3/4"
Approx. FT/LB	67	35	20	13	9.5	7.0	5.0	4.0	3.2	2.3	1.8	1.4	1.2	1.0	0.9	0.7	0.6	0.5

- ▶ Duramax Ultra-X® comes packed standard on spools of: 1, 3, 5 and 10 pounds.
- ▶ Bulk spools of 25 and 35 pounds are also available.

*Custom size packing is available upon request.



Duramax Marine® Engineering Solutions you can trust.

INNOVATION.
EXPERIENCE.
RESULTS.

Duramax Marine® is committed to providing excellence in every product we manufacture. Our Johnson Cutless® marine and industrial bearings, heat exchangers, impact protection systems and sealing systems are known worldwide for their engineered quality and dependable performance. Please contact the factory for information on any of the following Duramax Marine® products:

JOHNSON CUTLESS® WATER-LUBRICATED BEARING SYSTEMS

Johnson Cutless® Sleeve and Flanged Bearings
DX 490 Rudder Bushings

DURAMAX® ADVANCED WATER-LUBRICATED BEARING SYSTEMS

Johnson® Demountable Stave Bearings
ROMOR® I Stave Bearings and Segmental Housings
ROMOR® C- Partial Arc Bearings
DMX® Polymer Alloy Bearings
Duramax® DuraBlue™ Rudder & Pintle Bushings, Thrust Washers, and Wear Pads
Industrial Pump Bearing Systems

DURAMAX® HEAT EXCHANGE SYSTEMS

DuraCooler® Keel Coolers
Duramax® Demountable Keel Coolers
Duramax® BoxCoolers
Duramax® Plate Heat Exchangers

DURAMAX® IMPACT PROTECTION SYSTEMS

Johnson® Commercial Dock Bumpers, Fenders & Tow Knees
Weatherstrip Door Gaskets, Window Channel and Hatch Cover Gaskets
LINERITE® Composite Batterboard Systems

DURAMAX® SHAFT SEALING SYSTEMS

Duramax® Shaft Seal Systems
Johnson® Heavy-Duty Air Seal Stuffing Boxes
Duramax® Ultra-X® High Performance Compression Packing
Johnson® Strong Boy Stern Castings and Stuffing Boxes

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