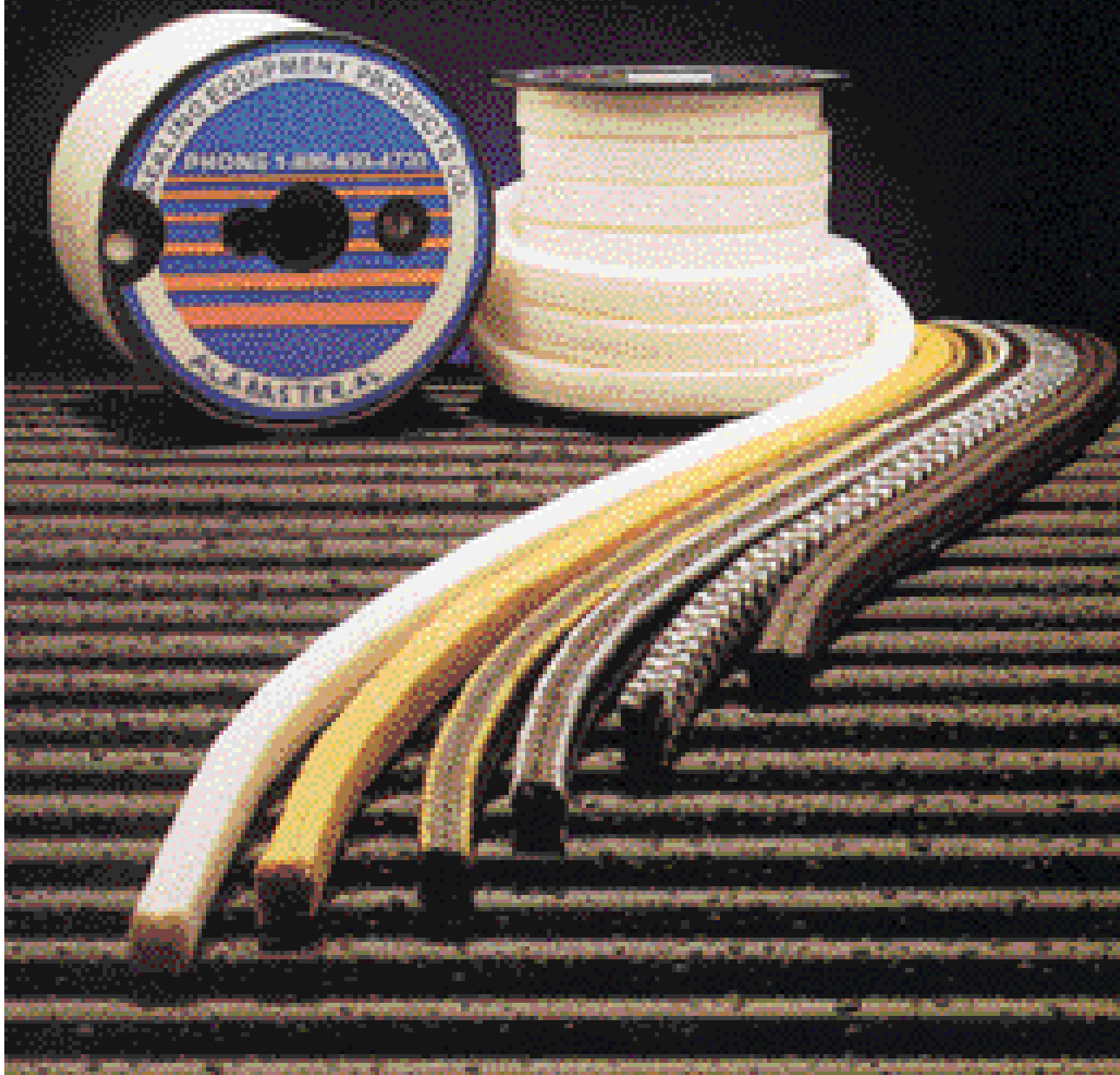


SIGNAL INDUSTRIAL PRODUCTS CORP.

PUMP PACKING



Signal Locations:

1601 Cowart Street - Chattanooga, TN 37408 - Phone 423-756-4980

6210 Enterprise Drive - Knoxville, TN 37909 - Phone 865-584-6175

213 Omohundro Place - Nashville, TN 37210 - Phone 615-254-0753

2046 Beltline Road S.W. - Suite 3 - Decatur, AL 35601 - Phone 256-355-0077

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GENERAL SERVICE PACKINGS

EZ 123 EASY PACK

Construction: Multi-Lok Braid

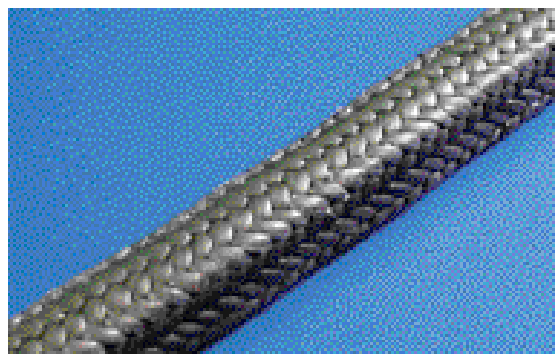
Features: PTFE / Graphite composition allows for high shaft speeds. Reinforced corners reduce extrusion associated with worn equipment. Construction allows easy installation and removal.

Equipment: General service on rotary and reciprocating equipment.

Recommended For: All applications suitable for PTFE and Graphite.

Limitations: Shaft speeds to 4400 FPM; temperatures to 500°F/260°C; pH range 0-14.

Remarks: The braiding construction makes installation easier and quicker without sacrificing volume. As the gland pressure is applied EZ 123 radially expands and returns to the square dimension necessary to affect a seal.



EZ 123

ML 402 GENERAL SERVICE PACKING

Construction: Multi-Lok Braid

Features: Non-asbestos fibers treated with a specially formulated blend of lubricants having a saxoline base.

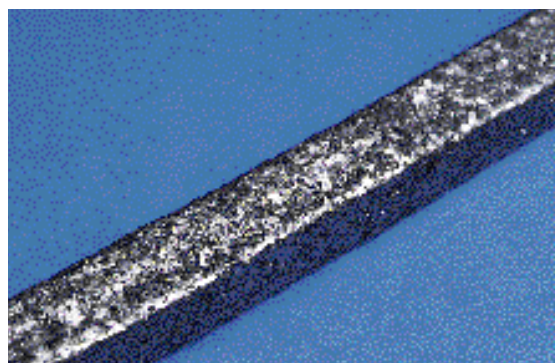
Treatment: Each strand is individually coated with graphite and the braid is surface coated with graphite.

Equipment: General service on rotary and reciprocating equipment.

Recommended For: Mild acids, alkalies, steam, brine, oil.

Limitations: Shaft speeds to 1885 FPM; temperatures to 450°F/232°C; pH range 4-10.

Remarks: Good general service packing. The lubrication formulation makes the extra difference. The ductile nature of the lubricant prevents wicking and provides superior sealability.



ML 402

402- Same as ML402 except square braided.

ML 560 HIGH PERFORMANCE PACKING

Construction: Multi-Lok Braid

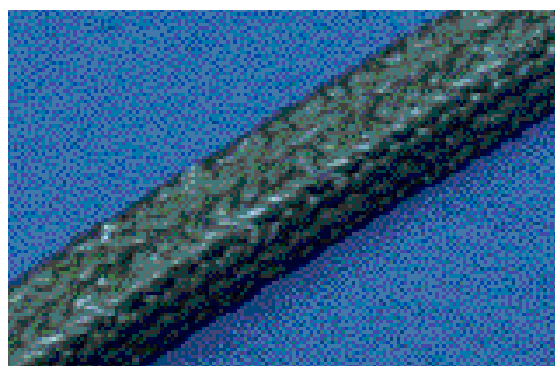
Features: High strength yarns with high thermal conductivity and lubricity.

Equipment: General service on rotary and reciprocating equipment including high speed pumps and slurry service.

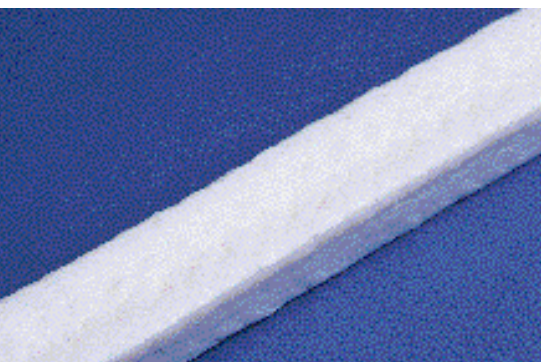
Recommended For: Pumps and agitators in pulp and paper, mining and other process industries.

Limitations: Shaft speeds to 4000 FPM; temperatures to 650°F/345°C; pH range 0-14 except in strong oxidizers.

Remarks: Style ML560's high thermal conductivity and lubricity allow it to operate without flush water in some applications.



ML 560



ML 2225

ML 2225 GENERAL SERVICE, PTFE/SYNTHETIC PACKING

Construction: Multi-Lok Braid

Features: Yarns are coated in PTFE suspensoid. This system of impregnation assures even distribution of the PTFE. The fibers are saturated and sealed with the PTFE particles, protecting the fibers from chemical action.

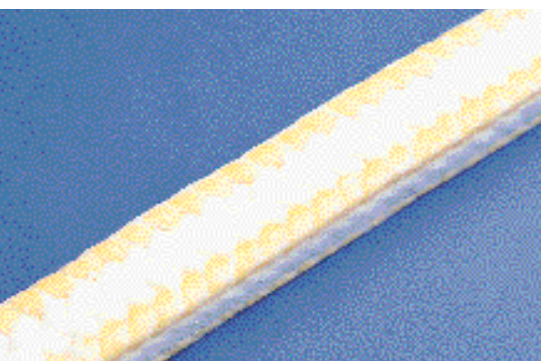
Surface Treatment: A surface coating of PTFE is applied after braiding. To assure good break-in characteristics, a special high temperature synthetic lubricant is added.

Equipment: General service on rotary and reciprocating pumps, agitators.

Recommended For: Caustics, mild acids, difficult chemicals, air, gases, solvents, oils, general chemical plant applications.

Limitations: Shaft speeds to 1885; temperatures to 500°F/260°C; pH 3-11.

2225- Same as ML2225 except square braided.



ML 2225A

ML 2225A ARAMID REINFORCED PACKING

Construction: Multi-Lok Braid

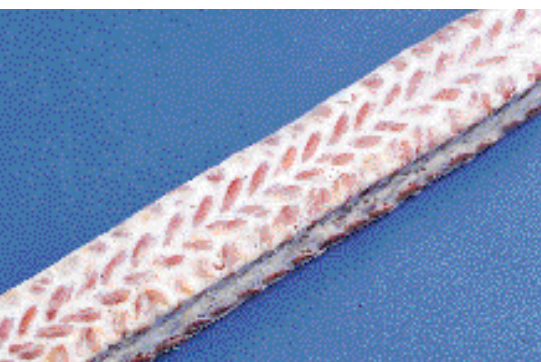
Features: Yarns are dipped in PTFE suspensoid. This system of impregnation assures even distribution of the PTFE. The fibers are saturated and sealed with the PTFE particles, protecting the fibers from chemical action. The PTFE provides the packing with a greater degree of chemical inertness, lower coefficient of friction and prevents penetration of chemical fluids. The corner tracks are made from an Aramid filament yarn to reduce extrusion and increase pressure and strength characteristics.

Surface Treatment: A surface coating of PTFE is applied after braiding. To assure good break-in characteristics, a special high temperature synthetic lubricant is added.

Equipment: General service, rotating and reciprocating pumps, agitators.

Recommended For: Caustics, mild acids, difficult chemicals, air, gases, solvents, oils, general plant applications.

Limitations: Shaft speeds to 1885 FPM; temperatures to 500°F/260°C; pH 3-11.



ML 2400

ML 2400 HIGH PERFORMANCE SERVICE PACKING

Construction: Multi-Lok Braid

Features: A Multi-Lok braided with Sealing Equipment's unique lubrication process that transforms each individual fiber into a reservoir of lubrication for longer packing life. An excellent high performance alternative.

Treatment: Proprietary non-petroleum lubricant containing no sulphur, silicone or wax.

Equipment: Rotating and reciprocating pumps, washer journals, liquor pumps, refiners, digesters and many other uses.

Recommended For: General service applications where graphite may not be acceptable: steam, water, acid, chemical and solvent applications, multi-use in chemical plants and pulp and paper mills.

Limitations: Shaft speeds to 1800 FPM; temperatures to 500°F/260°C; pH range 1-13 (except concentrated or hot sulfuric or nitric acid).

ML 3600 PACKING

Construction: Multi-Lok Braid

Features: PTFE/Graphite composite yarn for wide ranging plant applications including aggressive fluids and high temperatures.

Equipment: Pumps, agitators and mixers

Recommended For: All corrosive applications suitable for PTFE and graphite.

Limitations: Shaft speeds to 3600 FPM; temperatures to 550°F/287°C; pH range 0-14.



ML 3600

ML 4002 GFO® PACKING

Construction: Multi-Lok Braid

Features: Finely ground particles of the highest quality graphite in a PTFE matrix to control graphite migration. 100% GFO® Yarn.

Equipment: All reciprocating and rotating shafts.

Recommended For: All corrosive applications suitable for PTFE and graphite.

Limitations: Shaft speeds to 4400 FPM; temperatures to 550°F/287°C; pH range 0-14.

GFO® is a registered trademark of W.L. Gore and Associates.



ML 4002

ML 4002M MARINE PACKING

Construction: Multi-Lok Braid

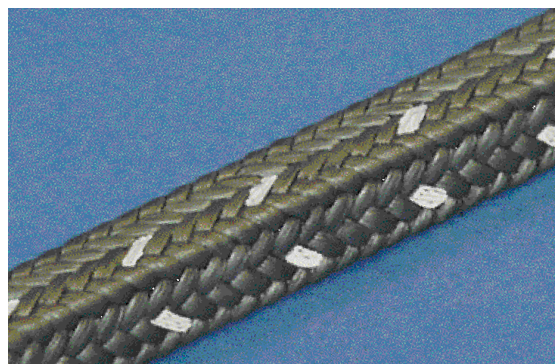
Features: Finely ground particles of the highest quality graphite in a PTFE matrix to control graphite migration. 100% GFO® Yarn.

Equipment: All reciprocating and rotating shafts.

Recommended For: Marine applications including stern tube packing. Low leakage rates for cleaner bilges.

Limitations: Shaft speeds to 4400 FPM; temperatures to 550°F/287°C; pH range 0-14.

GFO® is a registered trademark of W.L. Gore and Associates.



ML 4002M

GENERAL SERVICE PACKINGS

ML 4004 YELLOW JACKET PACKING

Construction: Multi-Lok Braid

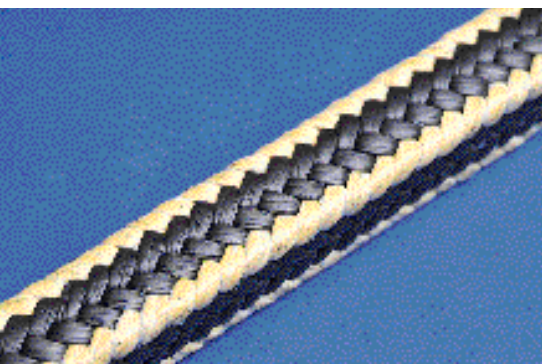
Features: A combination braid of ML 4002 and aramid fibers. This construction provides the strength of aramid fibers and the heat dissipating and lubricating qualities of the PTFE and graphite matrix.

Treatment: Light coat of an inert break-in oil.

Equipment: Paper mill stock pumps, agitators, or any service where strength and good lubricating qualities are needed.

Recommended For: All type paper mill applications where graphite is suitable.

Limitations: Shaft speeds to 2500 FPM; temperatures to 500°F/260°C; pH range 3-11.



ML 4004

ML 4800 ARAMID FILAMENT PACKING

Construction: Multi-Lok Braid

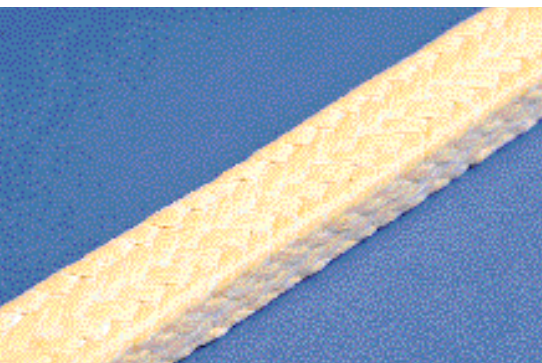
Features: Non-asbestos aramid fiber.

Treatment: Each strand is individually treated with a PTFE coating and a light, inert oil.

Equipment: Rotating and reciprocating shafts. All equipment handling tough abrasive products.

Recommended For: General service, caustics, mild acids, chemicals, air, oil gases, solvents, general chemical plant applications.

Limitations: Shaft speeds to 1900 FPM; temperatures to 500°F/260 °C; pH range 3-11.



ML 4800

ML 6225 TEK-PRO PACKING

Construction: Multi-Lok Braid

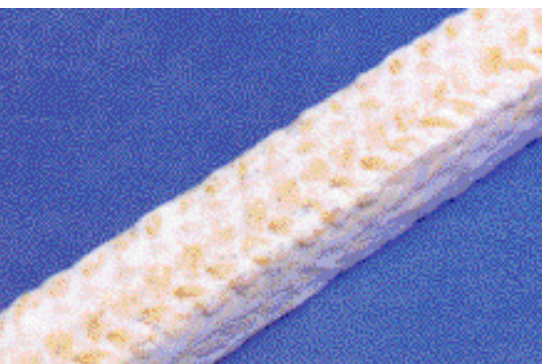
Features: A proprietary blend of non-asbestos TEK-PRO yarns treated with PTFE throughout the body of the packing. The PTFE suspenoid thoroughly impregnates, seals and fills all voids providing better resistance to chemical attack. A light lubricant is applied under pressure to improve run-in properties.

Equipment: Rotating and reciprocating pump and valve equipment, mixers and agitators.

Recommended For: Pulp and paper mill applications, recovery pumps, chemical applications, caustic soda. An excellent all-around general service chemical packing.

Limitations: Shaft speeds to 1885 FPM; temperatures to 550°F/288°C; pH range 3-12.

Remarks: The TEK-PRO yarns retain a greater volume of PTFE dispersion and are more uniformly distributed to provide longer and better sealing.



ML 6225

GENERAL SERVICE PACKINGS

ML 6225A ARAMID REINFORCED PACKING

Construction: Multi-Lok Braid

Features: A proprietary blend of non-asbestos TEK-PRO yarns treated with PTFE throughout the body of the packing. The PTFE suspensoid thoroughly impregnates, seals and fills all voids providing better resistance to chemical attack. A light lubricant is applied under pressure to improve run-in properties. The corner tracks are made from an Aramid filament yarn to reduce extrusion and increase pressure and strength characteristics.

Equipment: Rotating and reciprocating pump and valve equipment, mixers and agitators.

Recommended For: Pulp and paper mill applications, recovery pumps, chemical applications, caustic soda. A good all-around general service chemical packing.

Limitations: Shaft speeds to 1885 FPM; temperatures to 550°F/260°C; pH range 3-12.

Remarks: A superior general purpose packing. The TEK-PRO yarns retain a greater volume of PTFE dispersion and are more uniformly distributed to provide longer and better sealing.

ML 6402 TEK-PRO PACKING

Construction: Multi-Lok Braid

Features: This strong blend of proprietary fibers are stranded together, treated with a specially formulated blend of low-friction lubricants. An all-around excellent general service packing.

Treatment: Each strand is individually coated with a special grade flake graphite.

Equipment: For general service on rotary and reciprocating equipment.

Recommended For: Mild acids, alkalies, steam, brine, chemicals, oil.

Limitations: Shaft speeds to 1885 FPM; temperatures to 600°F/318 °C; pH range 3-11.

ML 8002 HIGH SPEED PACKING

Construction: Multi-Lok Braid

Features: PTFE fibers specially treated with finely ground particles of graphite to increase thermal conductivity and reduce thermal expansion resulting in higher shaft speeds.

Treatment: Lubricated with a proprietary high speed lubricant.

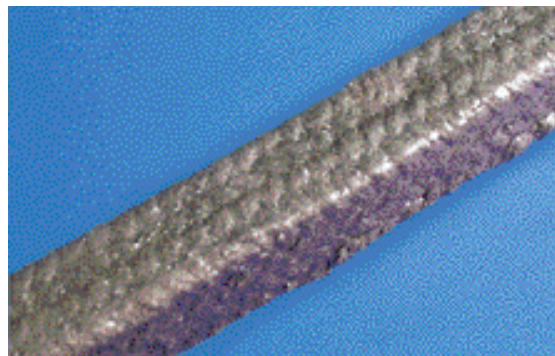
Equipment: All reciprocating and rotating shafts.

Recommended For: All corrosive applications suitable for PTFE and graphite.

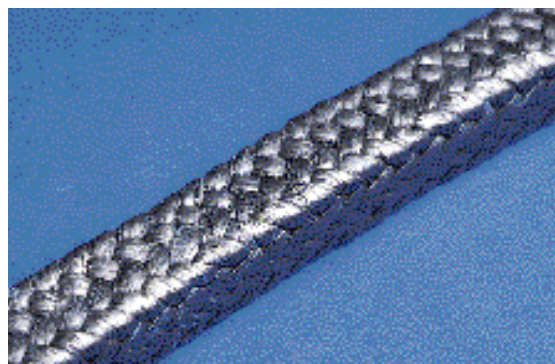
Limitations: Shaft speeds to 4900 FPM; temperatures to 550°F/287°C; pH range 0-14.



ML 6225A

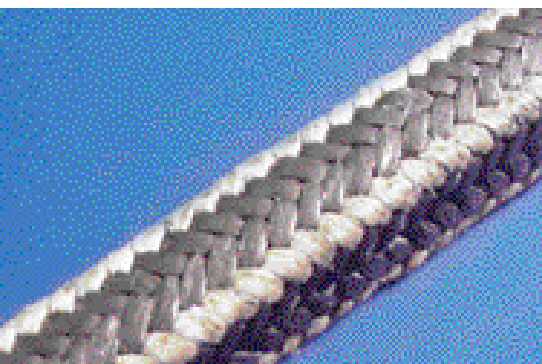


ML 6402



ML 8002

GENERAL SERVICE PACKINGS



ML 8004

ML 8004 ARAMID REINFORCED PACKING

Construction: Multi-Lok Braid

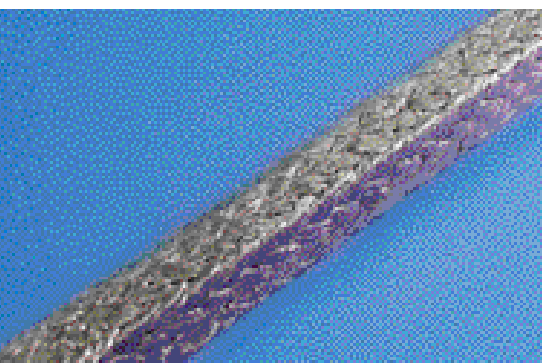
Features: The PTFE fibers are specially treated with finely ground particles of graphite to increase thermal conductivity and reduce thermal expansion. The corners are made of an aramid filament yarn to reduce extrusion and increase pressure and strength characteristics.

Treatment: Light coat of inert break-in oil.

Equipment: Paper mill stock pumps, agitators or any service where strength and good lubricating qualities are needed.

Recommended For: All type paper mill applications where graphite is suitable.

Limitations: Shaft speeds to 2500 FPM; temperatures to 500°F/260°C; pH range 3-11.



ML 2001

ML 2001 BRAIDED FLEXIBLE GRAPHITE PACKING

Construction: Multi-Lok Braid

Features: Pure homogenous graphite bonded to a fiberglass carrier for strength and thermal stability. It has no added lubricants or binders to cook out or become brittle.

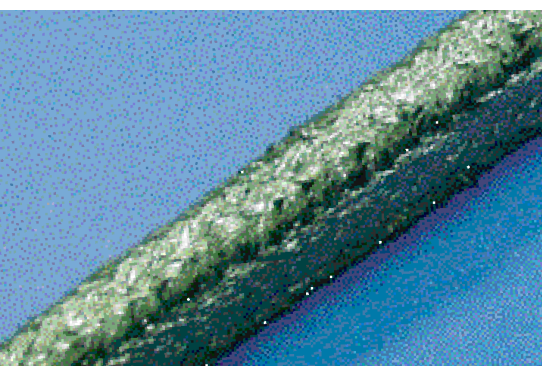
Treatment: None.

Equipment: Pumps and valves, volatile organic chemical service.

Recommended For: Rotating shafts where high shaft speeds and thermal conductivity are required.

Limitations: Shaft speeds to 4000 FPM; temperatures to 850°F/454°C in oxidizing conditions; 1200°F/649°C in steam; pH range 0-14 except strong oxidizers.

Note: For valve service Styles ML2001Z with zinc corrosion inhibitor and ML2001P with a passivating corrosion inhibitor are available.



ML 2001CC

ML 2001CC CARBON REINFORCED PACKING

Construction: Multi-Lok Braid

Features: Pure homogenous graphite bonded to a fiberglass carrier for strength and thermal stability. The carbon corners make the packing even tougher and helps minimize packing extrusion.

Treatment: None.

Equipment: The carbon corners allow the packing to be used on worn equipment where packing extrusion could otherwise be a problem.

Recommended For: Rotating shafts where high shaft speeds and thermal conductivity are required.

Limitations: Shaft speeds to 4000 FPM; temperatures to 850°F/454°C in oxidizing conditions; 1200°F/649°C in steam; pH range 0-14 except strong oxidizers.

ML 4444 GRAPHITE PACKING

Construction: Multi-Lok Braid

Features: The highest quality chemically resistant graphite yarns are twisted together and braided in a Multi-Lok fashion. This packing has an extremely low coefficient of friction. The light weight yarn provides more feet of length per pound than standard non-asbestos or PTFE packings. Graphite is a heat conductor and dissipates heat in the stuffing box, permitting higher shaft speeds and less leakage than other packings.

Equipment: All rotating and reciprocating shafts, valves and agitators.

Recommended For: Strong caustics, acids, chemicals and high pressure steam.

Limitations: Temperatures to 1200°F/649°C in steam; 800°F/427°C in oxidizing atmospheres; pH range 0-14; not recommended for fuming nitric acid, oleum and fluorine.



ML 4444

ML 4500 ULTRA-GRAPHITE PACKING

Construction: Multi-Lok Braid

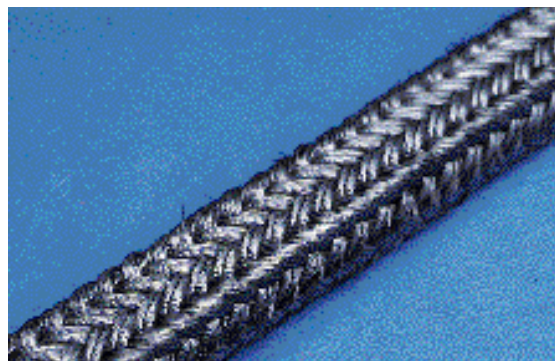
Features: Manufactured from pure graphite yarns impregnated with a fine submicron powder of inorganic graphite. A surface lubricant is applied to prevent wicking and to provide a bearing film between the shaft and the packing material.

Equipment: Valves*, high speed shafts, agitator shafts, reciprocating rods and plunger rods wherever minimum product leakage is required under severe service conditions.

Recommended For: Strong acids and strong caustics throughout the full pH range. It is virtually inert.

Limitations: Not recommended for oleum, fuming nitric acid and fluorine; temperatures to 6000°F/3316°C in non-oxidizing agents, 1200°F/649°C in steam; 800°F/427°C in oxidizers.

CAN BE NUCLEAR CERTIFIED.



ML 4500

*End rings only in conjunction with flexible graphite rings when used in valve packing applications.

CARBON YARN PACKINGS

ML 4460 CAR-GRAF PACKING

Construction: Multi-Lok Braid

Features: Car-Graf is a unique combination of amorphous carbon yarns treated throughout with fine particles of graphite.

Treatment: Treated throughout with graphite.

Equipment: General service on rotary and reciprocating shafts, high temperature valves as end rings.

Recommended For: All chemical services in which carbon is suitable.

Limitations: Shaft speeds to 4000 FPM; temperatures to 650°F/345°C in oxidizing atmospheres; 1200°F/650°C in steam; pH range 0-14 except in strong oxidizers.



ML 4460

CARBON YARN PACKINGS

ML 4461 CARLON PACKING

Construction: Multi-Lok Braid

Features: ML 4461 Carlon is a carbon filament packing treated with PTFE to help prevent color contamination and carbon migration.

Treatment: Each strand of the carbon yarn is treated and impregnated with a PTFE suspenoid, totally encapsulating the packing to prevent carbon filaments migrating into the system.

Equipment: Pulp mill equipment, steaming vessels, top separators, refiners, outlet devices, blow pumps, stock pumps, agitators and valves.

Recommended For: Most chemical services, except strong oxidizers.

Limitations: Shaft speeds to 3000 FPM; temperatures to 600°F/345°C; pH range 0-14.

PTFE PACKINGS

ML 2235 PRELUBED PTFE YARN PACKING

Construction: Multi-Lok Braid

Features: Unlike other PTFE fluorocarbon filament packing, Sealing Equipment pre-lubricates the yarns to provide a softer, more flexible packing, with improved peripheral speed characteristics and exothermic properties.

Equipment: Any equipment where braided packing is commonly used.

Recommended For: The most severe services. All oxidizers and corrosives with one exception: molten alkali metals.

Limitations: Shaft speeds to 1200 FPM; pH range 0-14.

Remarks: No glazing at higher speed applications, inert, virtually indestructible lower coefficient of friction, thermal resistance to 500°F/260°C; and high compressive strength.

ML 2236 FDA: PRE-LUBED PTFE YARN PACKING

Construction: Multi-Lok Braid

Features: Pure PTFE filament lubricated with a proprietary lubricant that complies FDA requirements.

Equipment: Any equipment where braided packing is commonly used.

Recommended For: Applications in the food processing industry or where an FDA material is required.

Limitations: Shaft speeds to 1200 FPM; temperatures to 500°F/260°C; pH range 0-14.

ML 4461

ML 2235

ML 2236 FDA

PTFE PACKINGS

ML 2238 HIGH SPEED PTFE PACKING

Construction: Multi-Lok Braid

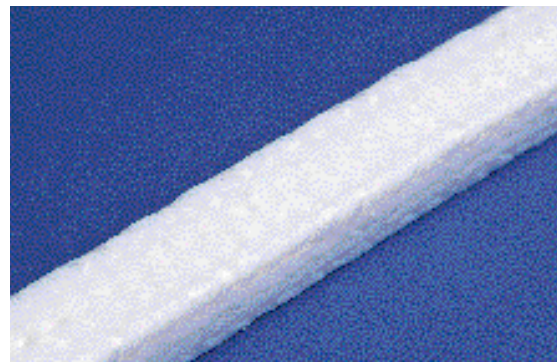
Features: A new improved PTFE yarn for high speed applications.

Equipment: Rotating pumps and agitators with peripheral shaft speeds too fast for other PTFE packing.

Recommended For: All chemicals and corrosives.

Limitations: Addition of new lubricants reduces the inertness slightly. Shaft speeds to 1885 FPM; temperatures to 500°F/260 °C; pH range 0-14.

Remarks: This specially treated PTFE packing operates where other PTFE filament glazes or hardens because of frictional heat from high speeds and thermal expansion.



ML 2238

VEGETABLE FIBER PACKINGS

2 VEGETABLE FIBER

Construction: Square Braid

Features: Vegetable fibers.

Treatment: Lubricated with a pure edible tallow and wax compound, ungraphited.

Equipment: Reciprocating and rotary shafts, plungers, hydraulic rams and stern tubes.

Recommended For: Brine, cold water and cold oil. High shaft speeds. High pressure rams and accumulators.

Limitations: Shaft speeds to 1885 FPM; temperatures to 220°F/104 °C; pH range 5-9.

2GR Same as STYLE 2 except graphited.



2

219 VEGETABLE FIBER/PTFE PACKING

Construction: Square Braid

Features: Highest quality vegetable fiber. All bark, coarse and short fibers have been removed.

Treatment: Impregnated with PTFE dispersion and a special break-in oil.

Equipment: Reciprocating and rotary shafts. Stern tube packing.

Recommended For: Brine, cold water and cold oil.

Limitations: Shaft speeds to 1885 FPM; temperatures to 220°F/104°C; pH range 5-9.

Remarks: PTFE impregnate acts as: (1) a surface leveler filling any surface voids. (2) a saturant to prevent wicking. (3) a lubricant to reduce friction and heat. (4) a protective shield around the flax fibers, preventing fluid penetration and fiber break down.



219

METALLIC PACKINGS

180 ALL METALLIC PACKING

Construction: Thin ribbons of low friction special alloy foil, spirally wrapped layer over-layer around a small core.

Features: Each layer of foil is lubricated with oil and graphite.

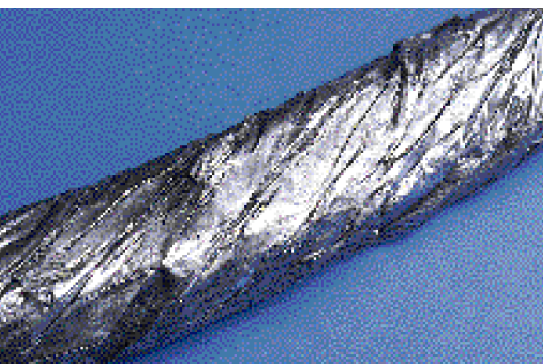
Treatment: Graphited throughout.

Equipment: Centrifugal and reciprocating pump rods and valve stems.

Recommended For: Steam oils, gasoline, air, ammonia, water.

Limitations: Shaft speeds to 3600 FPM; temperatures to 450°F/232°C.

Remarks: Do not use on brass, bronze rods, or plungers.



180

184 ALUMINUM PACKING

Construction: Aluminum alloy foil treated, lubricated, crinkled and wrapped upon itself.

Features: Each layer of foil is lubricated with oil and graphite.

Treatment: Graphited throughout.

Equipment: Centrifugal and reciprocating pumps, rods, valve stems, agitator shafts, heat exchangers and expansion joints.

Recommended For: Hot oil, hot tar, hot asphalt and paraffin.

Limitations: Shaft speeds to 3600 FPM; temperatures to 1000°F/538°C.



184

VALVE SEALING SOLUTIONS

- PROCESS VALVES
- STEAM VALVES
- NUCLEAR SERVICE
- FUGITIVE EMISSIONS
- FIRE SAFE PACKING
- LOW FRICTION
- CARTRIDGE DESIGNS



310

310 HIGH TEMPERATURE VALVE PACKING

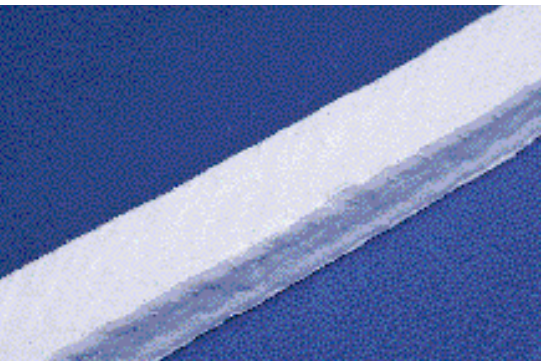
Construction: Braided Inconel wire-inserted carbon yarn over mastic core.

Features: Inconel wire-inserted carbon yarn jacket over a core of high temperature fibers and graphite. A corrosion inhibitor is added to protect the valve.

Surface Treatment: Moly coated.

Recommended For: Steam, super heated steam, air petroleum products, hot gases.

Limitations: Recommended for valve service; maximum line temperature 1200°F/649°C; pressure to 2500 p.s.i.



ML 2250

ML 2250 PTFE/SYNTHETIC PACKING

Construction: Multi-Lok Braid

Features: Yarns are coated in PTFE suspensoid. This system of impregnation assures even distribution of the PTFE. The fibers are saturated and sealed with the PTFE particles, protecting the fibers from chemical action.

Surface Treatment: A surface coating of PTFE is applied after braiding. No oil or lubricant is added.

Equipment: Valves, flanges, expansion joints.

Recommended For: Valve service and static gasket applications, caustics and mild acids.

Remarks: Use wherever break-in oil is undesirable.

2250 Same as ML2250 except square braided.

KNIFE GATE PACKING



DS 6225

DS 6225 KNIFE GATE VALVE PACKING

Construction: Special longer braid gives flexibility to the packing required in knife gate valve applications.

Features: A blend of TEK-PRO yarn treated with PTFE throughout.

Equipment: Knife gate valves.

Recommended For: Valve service in slurry and fly ash sluice service.

Limitations: Temperature 550°F/288°C; pH range 2-12.

Remarks: The method of construction makes DS 6225 easier to install and provides a much tighter fit than other valve packing used in knife gate valves.

KNIFE GATE PACKING

RV 2225 PTFE/SYNTHETIC KNIFE GATE VALVE PACKING

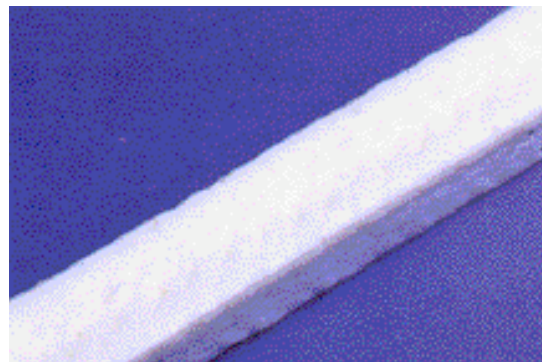
Construction: Square Braid.

Features: Special braid design to ease installation in knife gate valves. Yarns are coated in PTFE suspenoid. This system of impregnation assures even distribution of the PTFE. The fibers are saturated and sealed with the PTFE particles, protecting the fibers from chemical action.

Equipment: Knife gate valves

Recommended For: Caustics, mild acids, difficult chemicals, gases, solvents, oils, general chemical plant applications.

Limitations: Temperatures to 500°F/260°C; pH 3-11.



RV 2225

GRAPHITE VALVE PACKING

ML911W

Construction: Multi-Lok Braid

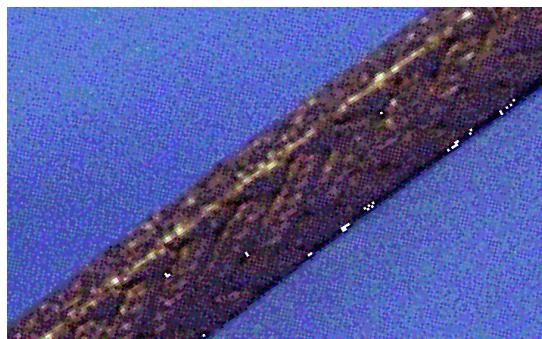
Features: This is ultra high purity flexible graphite packing has no resins or binders to bake out. Each strand of yarn is covered with a shield of Inconel wire.

Equipment: Valves

Recommended for: Excellent for high-pressure steam applications and where fugitive emissions are a concern.

Limitations: pH range 0-14; 1250°F/677°C in steam and pressures to 5000 psi.

Remarks: Available in 5 and 10 pound bulk spools, die formed rings, spiral-pak 3/16 to 1 inch standard



ML 911W

GRAPHITE RIBBON PACK

Construction: Flexible graphite Tape

Features: Graphite ribbon tape is self-lubricating and corrosion resistant. It is free from resins, fillers and binders. It is available in nuclear grade, which is 99.9% pure graphite, and industrial grade, which is 95% minimum graphite content. It is flexible and resilient and will not soften, carbonize, chalk, shrink, harden or cold flow. It dissipates heat, withstands high pressure and will operate leak-free.

Equipment: Valves.

Recommended For: Form in place valve stem packing.

Limitations: Temperature -400 to 3,000°F/1650°C in non-oxidizing atmospheres, -400 to 850°F/454°C in oxidizing atmospheres, 1200°F/649°C in steam, pH 0-14 except strong oxidizers.

Remarks: Available in crinkle form for gasketing. Comes with or without adhesive backing.



Ribbon Pack



ML 2001

ML2001 BRAIDED FLEXIBLE GRAPHITE

Construction: Multi-lok braid

Features: Pure homogenous graphite bonded to a fiberglass carrier for strength and thermal stability. It has no added lubricants or binders to cook out or become brittle. Passes API 607 Fire Test. Excellent fugitive emission packing.

Equipment: Pumps and valves.

Recommendations: Rotating shafts where high shaft speeds and thermal conductivity are required.

Limitations: pH range 0-14, temperatures 850°F/455°C in oxidizing atmospheres; 1200°F/649°C in steam.

Remarks: Available in bulk spool, spiral pack, cut and die-formed ring sets. Standard sizes 1/8 inch to 1 inch.

ML2001W has an Inconel wire insertion.

ML2001Z has an active (zinc) corrosion inhibitor.

ML2001P has a passive corrosion inhibitor.



ML 2003

STYLE 2003 GRAPHASEAL

Construction: Braided carbon with flexible graphite jacket.

Features: Its compressibility and excellent radial expansion enable sealing worn valve stems with minimum stem friction. Graphaseal passes API 589 and API 607 fire tests.

Equipment: Pumps & valves

Recommended for: Critical valves; rising stem applications; compliance valves in volatile organic and inorganic chemical service and high speed pumps.

Limitations: Temperature 1200°F/635°C in steam, 5000°F/2760°C in non-oxidizing atmospheres, pH range 0-14, service pressure 4000 psi.

Remarks: Available in 5 foot spiral or die formed rings. 1/8 inch and up cross sections in 1/16 increments.



G2

G2 Cartridge 'The Eliminator'

Construction: A flexible graphite cartridge with built in end rings.

Features: The unique, patented* cartridge design reduces the costly labor to pack valves. It reduces the need to stock a variety of die formed rings since G2 has the complete seal in one easy to install cartridge.

Equipment: Valves

Recommended for: High temperature and high-pressure applications.

Limitations: pH range 0-14, temperature 3000°F in neutral or reducing atmosphere 850°F in oxidizing atmosphere.

Remarks: The G2 has passed fugitive emission testing and the American Petroleum Institute 607 fire test.

* US Patent Numbers 5050298, 5135240

ML 2254 TREATED PTFE YARN PACKING

Construction: Multi-Lok Braid

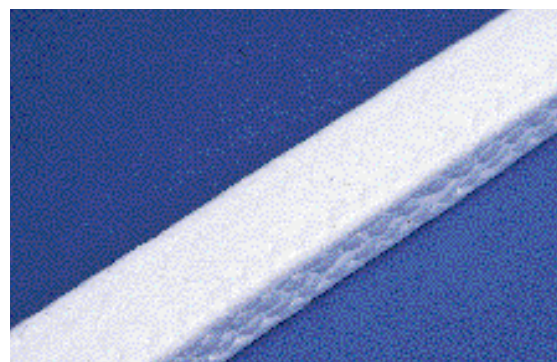
Features: Style ML 2254 PTFE fibers are treated with a PTFE dispersion which fills and seals all interstices in the packing fibers. After braiding, a PTFE coating is applied and the packing is forced air dried. This packing will not wick.

Equipment: Valves, expansion joints, and static applications.

Recommended For: All severe chemical and corrosive services where an inert packing material is essential.

Limitations: Temperatures to 500°F/260°C, pH range 0-14. For static applications.

Remarks: Excellent valve stem packing for all chemicals and corrosives; inert to all fluids except for molten alkali metals.



ML 2254

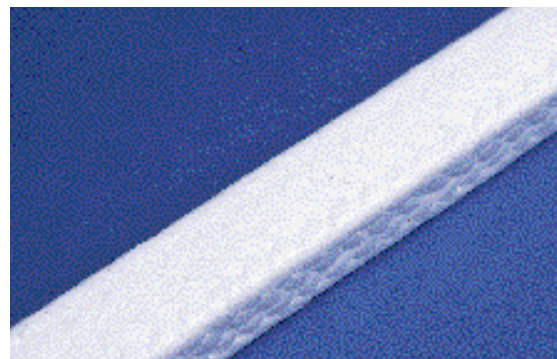
ML 22540X-TREATED PTFE YARN PACKING

Construction: Multi-Lok Braid

Features: PTFE fibers with PTFE suspension. Contains no organic lubricant and is approved for oxygen service.

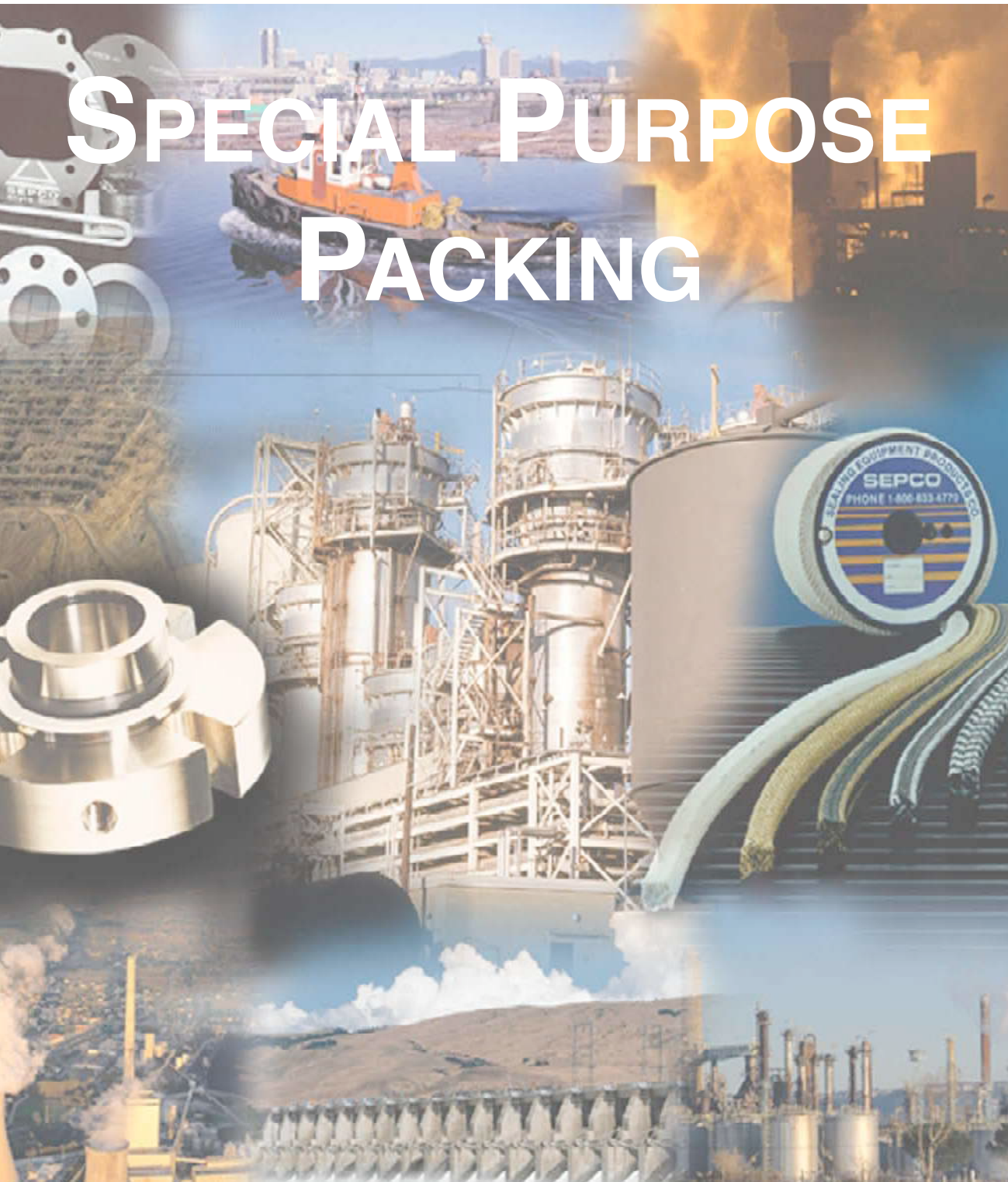
Recommended For: All services where an organic lubricant cannot be used.

Limitations: Temperatures to 550°F/260°C, pH range 0-14.



ML 22540X

SPECIAL PURPOSE PACKING



SPECIAL PURPOSE PACKINGS

HOLLOW CORE PACKING

Sealing Equipment's Hollow Core packings are specifically designed to seal large rotating equipment like mixers and agitators. Testing has proven that a high quality braided packing with a rubber core will outlast conventional packing in applications associated with excessive shaft deflection on large shafts. We guarantee it!

Styles: All packing styles are available in Hollow Core design.

Sizes Available: 1/2" and up.

Core Material: Silicone; standard (others upon request).

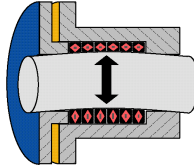
Hollow Core: for rotating equipment, designated "HC" on order.

Solid Core: for static applications, designated "SC" on order.

Braid-Over-Braid: for severe run-out.

Multi-Lok: for abrasive applications.

Hollow Core's *memory* keeps packing in constant contact with shaft and stuffing box.



HOLLOW CORE

SPIRAL PAK PACKING

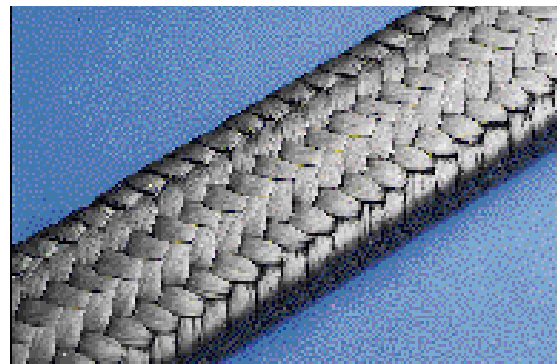
Sealing Equipment's Spiral Pak is the most innovative die-formed ring concept in the fluid sealing industry today. Spiral Pak offers all the benefits of a successful die-formed ring program without the expense of maintaining costly dies and die-forming equipment. Distributors and end users alike can cut a broad range of ring sizes from the same coil of Spiral Pak. Simply wrap Spiral Pak around a mandrel the same size as the shaft and cut the desired number of rings. Each ring cut from Spiral Pak has the same density as individually die-formed rings.



SPIRAL PAK

WASHER PAK PACKING

Washer Pak replaces the conventional multiple ring packing found in most washer journals. The unique wide packing requires only one ring as opposed to several. This innovative product was developed at the request of a pulp mill mechanical superintendent who wanted to eliminate the problems associated with packing rings "snaking up" in washer journals. Washer Pak is available in a variety of yarns, from 100% GFO to pure non-contaminating PTFE. It comes in either pre-cut lengths or as bulk packing. The Multi-lok construction is available where the width of the packing does not exceed twice the thickness. Braid-over-braid construction is used for wider applications. Washer Pak, the time saving alternative to multiple ring installation and removable.



WASHER PAK



FG 4

FG 4 BRAIDED FIBERGLASS ROPE

Construction: Square plaited from texturized filament, inorganic flexible glass fibers. Untreated.

Features: Will not shrink or swell in service and is completely incombustible.

Equipment: Gasketing material on covers of processing kettles, tanks, etc.

Recommended For: Static applications. Extremely high temperatures up to 1000°F/538°C. For sealing molten metals, acids, solvents, etc.

Style 4- Same as FG 4 except braided from continuous filament yarn.



FG 800

FG 800 TWISTED FIBERGLASS ROPE

Construction: Fiberglass rovings tightly twisted to desired diameter.

Features: A dry flexible rope packing.

Equipment: Furnace doors, manhole covers, etc.

Recommended For: Air, hot gases, dry steam.

Limitations: Temperatures to 1000°F/538°C.



FG 801

FG 801 SINGLE JACKETED FIBERGLASS ROPE

Construction: Braided jacket of fiberglass yarns over a core of twisted fiberglass rope.

Features: More stable than FG 800.

Equipment: As a seal on furnace and gas generated doors.

Recommended For: Hot air and gases.

Limitations: Temperatures to 1000°F/538°C.

FG 802 DOUBLE JACKETED FIBERGLASS ROPE

Construction: Twisted fiberglass core with a double braid-over-braid jacket.

Features: More rugged and slightly firmer than FG 801.

Equipment: Hot air and gases.

Recommended For: Mild acids, alkalies, steam, brine, oil.

Limitations: Temperatures to 1000°F/538°C.

Remarks: Able to stand more mechanical abuse than FG 801.



FG 802

FG 805 SOLID BRAIDED FIBERGLASS ROPE-ROUND

Construction: Braid-over-braid.

Features: Stronger and more dense than FG 801 and FG 802.

Equipment: As a seal on furnace and gas generator doors wherever the firmest, strongest construction is required.

Recommended For: Hot air and gases.

Limitations: Temperatures to 1000°F/538°C.

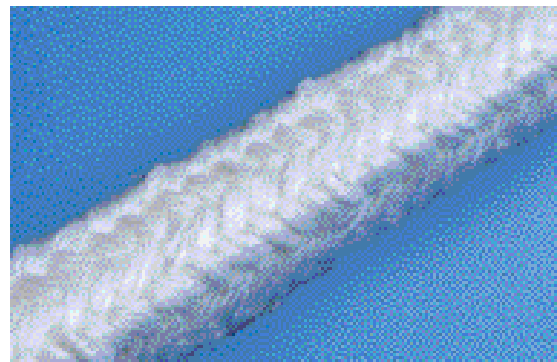
Remarks: Stronger and firmer packing than either FG 801 or FG 802. A much denser packing, capable of withstanding greater mechanical abuse.



FG 805

FG 805 SQ BRAIDED FIBERGLASS ROPE-SQUARE

Identical to FG 805 solid braided fiberglass rope with the exception of its square construction. May be ordered square or with a rectangular cross section.



FG 805-SQ



SS 490

SS 490 LID AND DOOR PACKING

Construction: Braid over core

Features: This packing is braided from unique Inconel wire inserted high temperature yarn. A high temperature polymer core construction is incorporated into the design to give the packing memory to recover its size after door/lid is opened and closed.

Equipment: Oven doors, kilns, crucible lids and tanks

Recommended for: Static Applications. Problem areas where packing is needed to seal uneven or rough surfaces and that must seal and reseal from frequent openings and closings.

Limitations: Temperatures up to 1000 degrees F

Remarks: The finished packing is coated with a high temperature polymer which allows for clean handling and good clean cuts without unraveling.



BWFP

BOILER WATER FEED PUMP PACKING

Construction: Die formed flexible graphite with soft metallic end rings

Features: These packing sets are designed to overcome the high temperatures, shaft speed and pressures associated with boiler water feed pumps. The graphite is self-lubricating and conducts heat for longer life.

Recommended for: It is specifically designed for the difficult task of sealing boiler water feed pumps.

Limitations: Shaft speeds to 4000 fpm; temperatures to 1000°F/538°C.



SOOT BLOWER SETS

SOOT BLOWER SETS

Construction: Braided, die formed and molded in a conical or 'V' configuration in sizes to fit all soot blower equipment.

Styles: **Fluororay Blue** Ceramic filled PTFE

Fluororay Black Carbon filled PTFE

SS 452 High Purity Carbon/Graphite

SS 583 Carbon Reinforced Flexible Graphite

Features: Formed to size sets aid installation and removal. The density and lubricity increase packing life and reduce wear on the lance tube. SS 583 is recommended for the harshest conditions.

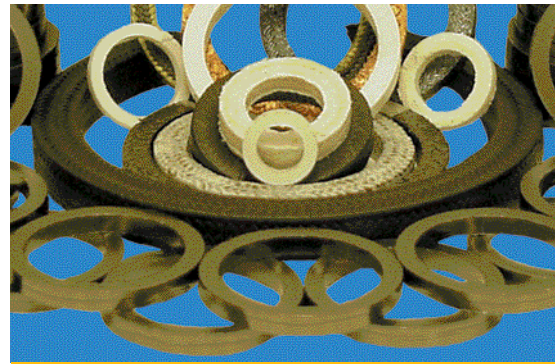
Equipment: Soot blowers.

Limitations: Fluororay Styles temperatures to 550°F/288°C. SS 452 and SS 583 temperatures to 1250°F/677°C.

SPECIALTY ITEMS

DIE-FORMED RINGS

Because of the friction along the shaft and bore of the stuffing box, the mechanical pressure exerted by the gland is not transmitted uniformly across all the rings. In conventional packing methods, the first two rings absorb most of the mechanical pressure; therefore they receive the most wear and in turn exert the most wear on the shaft. In fact, 70% of the wear takes place here. But, with Die-Formed Rings, the mechanical pressure is exerted over a larger area, greatly increasing shaft sleeve life. Die-Formed Rings are easier to install because the size is exact. Also Die-Formed Rings are densified, “run-in” time is greatly reduced and sealability is much better resulting in longer packing and sleeve life.



DIE-FORMED RINGS

FLEXIBLE LANTERN RING MATERIAL

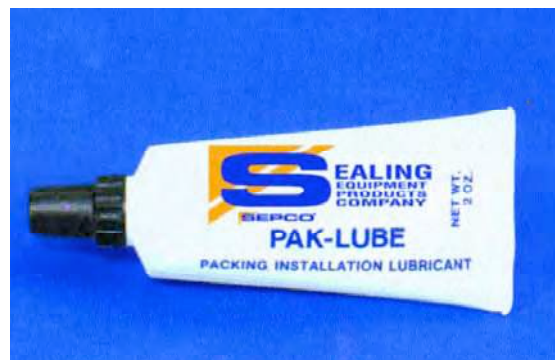
Made of 100% PTFE material, Flexible Lantern Material is an innovative approach to standard lantern rings. Designed to perform like lantern rings, flexible lantern material is easier to install and remove. Sold in roll form like bulk packing, flexible lantern ring material can be cut to the specific length needed, therefore eliminating the need to stock many different size rings.



LANTERN RING MATERIAL

PAK LUBE™

Pak-Lube™ is a water-based lubricant designed to make installation of packing rings fast and easy. Many other packing installation lubricants are metal-based and can damage sleeves and shafts. Pak-Lube™ dissipates completely, leaving no harmful residue.



PACKING LUBRICANT

HOW TO INSTALL PACKING

PACKING THE PUMP CORRECTLY. *The importance of packing the pump correctly cannot be overemphasized.* Many packing failures are due to incorrect installation of the packing. The following steps have been devised to ensure effective installation of packings on pumps:

INSTALLATION OF PACKING

1) REMOVE ALL THE OLD PACKING FROM THE STUFFING BOX. Clean box and shaft thoroughly and examine shaft or sleeve for wear and scoring. Replace shaft or sleeve if wear is excessive.

2) CHOOSING THE CORRECT CROSS-SECTION OF PACKING.

To determine the correct ring size:

- A.) Measure the diameter of the shaft (inside the stuffing box area, if possible).
- B.) Measure the diameter of the stuffing box (to give the O.D. of the ring).
- C.) Subtract the I.D. measurement from the O.D. measure and divide by two. The result is the required cross section.

3) CUTTING PACKING INTO RINGS.

See Figure 1. Hold the packing tightly on the mandrel, but do not stretch excessively and cut the ring(s).

See Figure 2. Multiple rings can be Butt Cut / 90°(square).

See Figure 3. Individual rings can be Skive Cut 45°(diagonally).

The best way to cut packing rings is to cut them on a mandrel with the same diameter as the shaft in the stuffing box. If there is no shaft wear, rings can be cut on the shaft outside the stuffing box.

Insert one ring at a time into the stuffing box, making certain it fits the packing space properly. Each additional ring can be cut in the same manner, or the first ring can be used as a master from which the balance of the rings are cut.

If the Butt cut rings are cut on flat surface, be certain that the side of the master rings, and not the O.D. or I.D. surface, is laid on the rings to be cut. This is necessary so that the end of the rings can be reproduced.

When cutting Skive, diagonal joints, use a maple miter board so that each successive ring can be cut at the correct angle.

It is necessary that the rings be cut to the correct size. Otherwise, service life is reduced.

4) INSTALL ONE RING AT A TIME. Make sure the packing ring is clean, and has not picked any dirt in handling. If needed, lubricate the shaft and inside of the stuffing box.

Packing rings should be firmly seated in the stuffing box one at a time using a tamping tool.

See Figure 4. Joints of successive packing should be staggered at 90°. When enough rings have been installed so that the nose of the gland will reach them, individual tamping should be supplemented by using the gland.

5) AFTER THE LAST RING IS INSTALLED. Put the gland in place and take up bolts finger tight or very slightly snugged up. Do not jam packing into place with excessive gland loading. Start up the pump, and take up bolts until leakage is decreased to a tolerable minimum. Make sure gland bolts are adjusted evenly. **STOPPING LEAKAGE ENTIRELY AT THIS POINT WILL CAUSE THE PACKING TO BURN UP.**

6) ALLOW PACKING TO LEAK FREELY WHEN STARTING UP A NEWLY PACKED PUMP. Excessive leakage during the first hour of operation will result in a better packing job over a longer period of time. Take up gland bolts gradually as the packing seats to a toler-

able level of 10 to 12 drops per minute per inch of shaft diameter. **NEVER TRY TO STOP LEAKAGE ENTIRELY, UNLESS PACKING MANUFACTURER INDICATES THAT IT IS SAFE TO DO SO.**

7) WHEN SPECIFIED BY THE PUMP MANUFACTURER, PROVIDE MEANS OF LUBRICATING THE SHAFT AND PACKING THROUGH THE LANTERN RING BY SUPPLYING WATER, OIL, GREASE OR LIQUID HANDLED IN THE PUMP. Fittings for this purpose are standard on many pumps.

8) IF THE STUFFING BOX HAS A LANTERN RING, make sure that the lantern ring, as installed, is slightly behind the fluid inlet so that it will move under the inlet as the follower pressure is applied. See Figure 5.

9) ON BOTH CENTRIFUGAL AND RECIPROCATING PUMPS, about 70% of wear is on the outer two packing rings nearest the gland. However, each additional ring does throttle some fluid pressure. On most equipment, there must be enough rings so if one fails, another does the sealing, and the machine need not be shut down.

INSTALLATION OF SEALING EQUIPMENT'S PATENTED SPIRAL PAK PACKING

WARNING: NEVER WIND BULK OR COILED PACKING INTO THE STUFFING BOX, CUT THE PACKING INTO SEPARATE RINGS BEFORE INSTALLATION. Use the same procedure of installing rings outlined in Steps 1-9.

INSTALLATION OF PTFE & GRAPHITE YARN PACKING.

WARNING: SEAT RINGS GENTLY, THEN GRADUALLY TIGHTEN BOLTS AFTER THE PUMP IS ON STREAM. Use the same procedure of installing rings outlined in Steps 1-9.

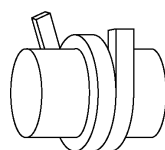


Figure 1)

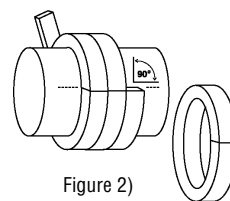


Figure 2)

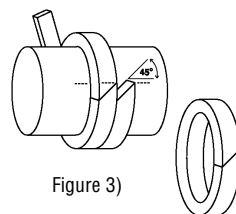


Figure 3)

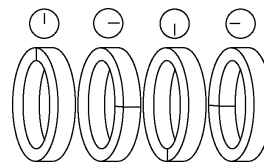


Figure 4)

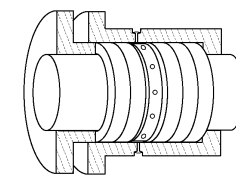


Figure 5)

RPM/FPM CONVERSION TABLE

RPM	DIAMETERS																
	1/2"	3/4"	1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"	7"	8"	9"	10"
100	13	19	26	32	39	45	52	65	78	91	104	131	157	183	209	235	261
300	39	58	78	98	118	137	157	196	235	275	314	393	471	549	628	706	785
500	65	98	131	163	195	229	261	327	392	458	523	654	785	916	1047	1178	1309
1000	131	196	262	327	393	458	524	655	785	916	1047	1309	1570	1832	2094	2356	2618
1500	196	294	392	490	589	687	785	982	1178	1374	1570	1963	2356	2748	3141	3533	3925
1750	229	344	458	573	687	821	916	1145	1374	1604	1833	2291	2749	3207	3665	4114	4582
2000	262	392	524	654	785	916	1057	1309	1571	1833	2094	2618	3141	3663	4187	4710	5233
2500	327	490	655	817	976	1145	1309	1636	1962	2290	2618	3272	3925	4579	5233	5887	
3000	393	588	785	981	1178	1374	1571	1963	2355	2749	3141	3925	4710	5945			
3600	471	707	942	1178	1414	1649	1885	2356	2827	3299	3770	4712	5655				
4000	524	784	1047	1309	1570	1832	2094	2618	3141	3663	4186	5233	6280				
4500	590	882	1178	1472	1717	2061	2356	2945	3533	4121	4710	5890	7070				
5000	655	980	1309	1636	1953	2290	2618	3271	3925	4579	5233	6545	7850				

STANDARD SIZES APPROX. FEET PER POUND

PACKING	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
2	87.5	45.0	28.0	18.6	13.3	10.0	7.7	6.1	4.9	3.5	2.6	1.9
180			5.1	3.4	2.6		1.4		1.0	.7	.4	.3
219			22	15.5	10.5	7.6	6	5.1	4.4	3.1	2.3	1.8
310	76.7	46.7	22.6	14.0	10.2	7.2	5.6	4.7	4.0	2.7	2.0	1.6
402	105	47	31	18.9	14	10.5	8	6.5	5	3.6	3	2
ML 402			31	18.9	14	10.5	8	6.5	5	3.6	3	2
ML 560	100	48.3	33.3	20	14.3	12.5	8.3	6.8	5.9	4.3	3.2	2.4
ML 911W			30	19	14	11	8	6.7	5.6	4	3	2.2
ML 2001	100	50	33.1	20	14.2	11.1	8.4	6	4.7	3.1	2.5	2.1
2225	85	37	24	16	11	7.6	6.3	5.3	4.5	3	2	1.5
ML 2225	85		24	16	11	7.6	6.3	4.9	4.7	3.1	2	1.5
ML 2225A	85		24	16	11	7.6	6.3	4.9	4.7	3.1	2	1.5
ML 2235	72	31.5	19.4	12.5	9	7	5.1	4.1	3.3	2.3	1.7	1.2
ML 2236 FDA	72	31.5	19.4	12.5	9	7	5.1	4.1	3.3	2.3	1.7	1.2
ML 2238	72	31.5	19.4	12.5	9	7	5.1	4.1	3.3	2.3	1.7	1.2
2250	93	40	26	17.6	12.1	8	6.9	5.3	5.1	3.4	2.2	1.6
ML 2250	90	42	26	17.6	12.1	8	6.9	5.3	5.1	3.4	2.2	1.6
ML 2254	74	32	20.6	13.5	9.5	7	5.5	4.1	3.3	2.5	2	1.6
ML 2400			20	14.3	11.1	9.1	6.3	5.6	4	2.9	2.2	1.8
ML 3333			30.3	18.9	13	9.3	7	6	4.6	3.3	2.6	2
ML 3600	73	33	19.4	13.1	9	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 4000			19.4	13	9	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 4002	73	33	19.4	13.1	9	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 4004	73	33	19.4	13.1	9	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 4006			18.5	12.5	9	7.3	5.4	4.2	3.5	2.6	1.8	1.3
ML 4012			19.4	13.1	9.5	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 4444	140	69	44.3	27	19.1	14	10.3	9	7.3	5.1	4	3
ML 4460	126	58	35.2	27	17.5	15	10.2	8.2	6.6	4.8	3.6	2.8
ML 4461			22.1	14.9	10.9	7.8	6.2	4.8	3.9	2.9	2.2	1.7
ML 4500	155	81	52.2	34.3	25	17	12	9.6	7.5	5.3	3.8	3
ML 4800	78	37	24	15.5	11.1	8	6.5	4.9	4.2	3	2.3	1.8
ML 6225	78	37	24.3	15.2	11	8.3	6.1	4.9	4	2.8	2	1.6
ML 6225A	73	37	24	15.5	11.1	8	6.5	4.9	4.2	3	2.3	1.8
ML 6402	86.8	38.8	25	17.5	12.4	9.2	7.3	5.8	4.7	3.3	2.5	1.9
ML 8000			19.4	13	9	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 8002	76	33	19.4	13.1	9.5	7.6	5.8	4.6	3.7	2.6	1.9	1.5
ML 8004			19.4	13.1	9.5	7.6	5.8	4.6	3.7	2.6	1.9	1.5