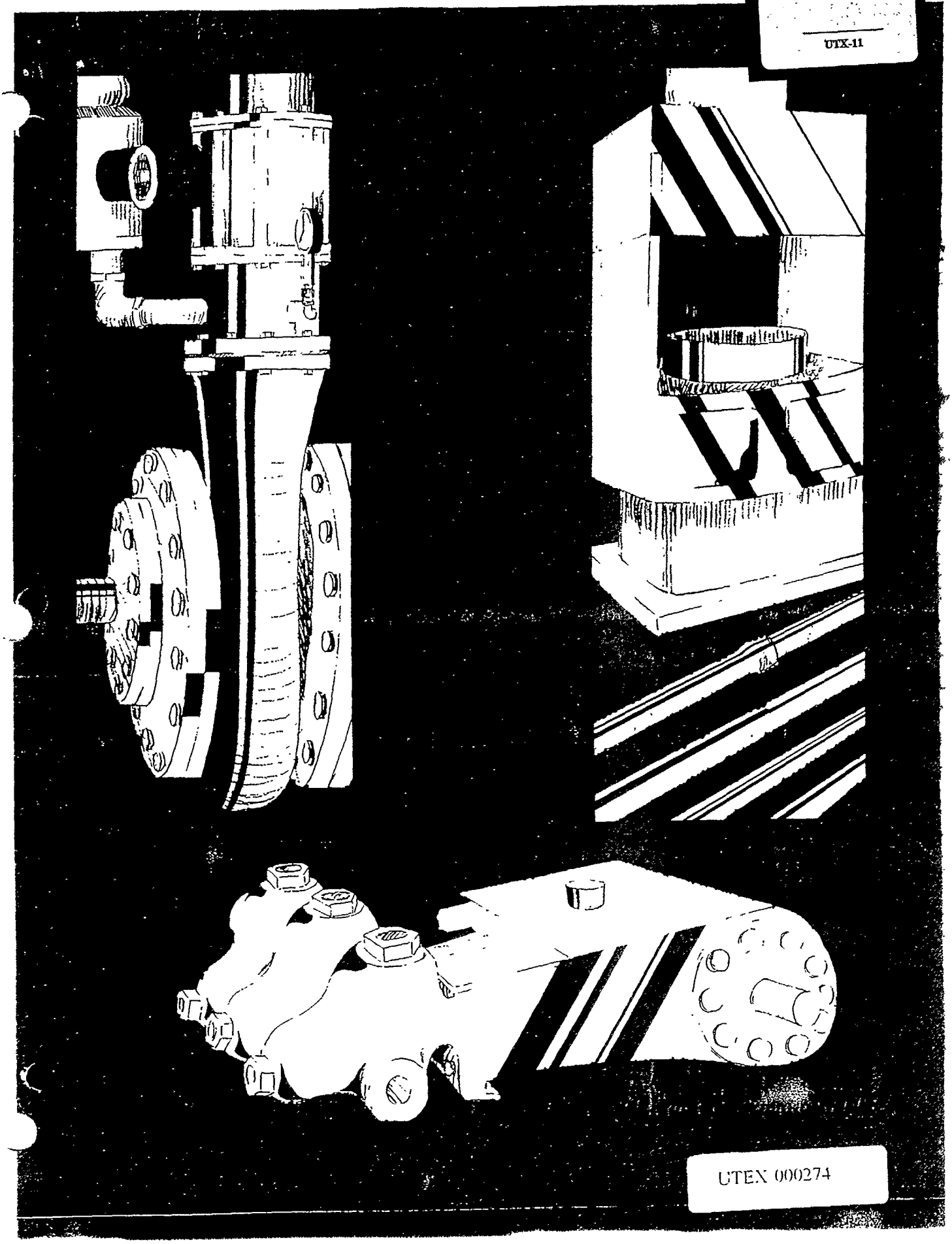
PLAINTIFF'S EXHIBIT

UTX-11



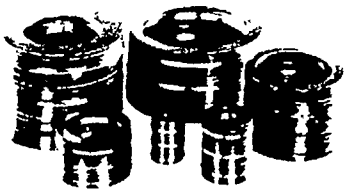
UTEX 000274

UTEX "J" DESIGN NON-ADJUSTABLE PACKINGS (Patented)

Utex "J" Design Non-Adjustable Packings are the result of extensive engineering and testing programs. The design incorporates sealing rings constructed with a thermosetting core, with tough flexible sealing lips. The sealing lips are backed up by thermosetting composition adapters. This combination of construction features, plus flattened support surfaces, prevent the usual nesting or crushing that results from excessive gland or fluid pressure.

The design and construction features provide a packing which resists overtightening. This unique non-adjustable feature reduces maintenance, stuffing box wear and results in lower operating costs.

Each set of "J" Design packing consists of two or more units of packing. Each unit contains one top adapter, one bottom adapter, and one seal ring. One set is sufficient to pack one stuffing box. Designed for use on reciprocating equipment, there is a "J" Design packing for your application. Lubrication is recommended where materials being pumped do not give the necessary lubrication.





Style	Lip Composition	Service
835	Nitrile & Duck	Fresh & Salt Water, Propane, Butane, Gasoline, Light & Heavy Oils, Mild Chemicals & Acids, Most Hydraulic Fluids, Elevated Temperatures
838	Nitrile & Nylon	Fresh & Salt Water, Propane, Butane, Gasoline, Light & Heavy Oils, Mild Chemicals & Acids, Most Hydraulic Fluids
843	Homogeneous Nitrile	Abrasive Slurries, Mud, Cement, Acids, Oils, Hydrocarbons, Acidizing, Sand Fracing
845	Nitrile, TFE, Nylon	Harsh Chemicals & Acids, Low Temperatures

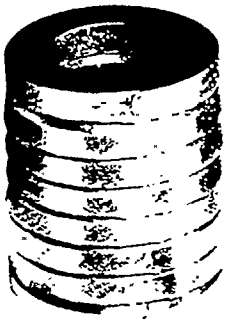
Engineering data and drawings for specific application are available on request. Please direct your inquiry with as many details as possible to Utex Industries or your local Utex distributor.

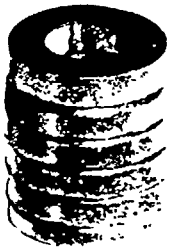
UTEX "V" PACKING

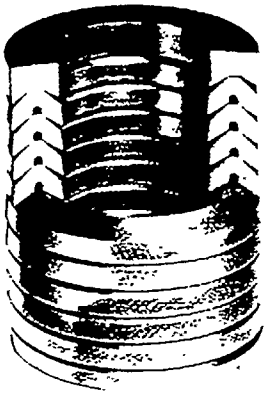
The Utex "V" Ring is an automatic sealing packing with a hinge-like construction. Seal ring sealing surfaces are designed to permit a void between each ring which acts as a lubrication reservoir throughout the length of the packing set. This feature

- Retards nesting.
- Allows each ring to relax between cycles.
- Facilitates adjustment.
- Shortens run-in periods.
- Allows lubrication to reach each ring.

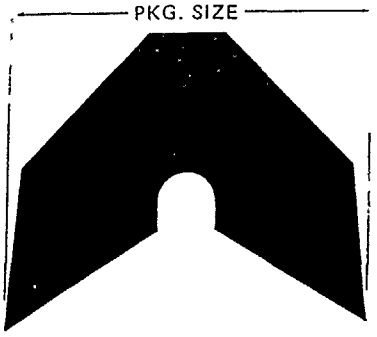
All of these features combine to provide an excellent packing for rods, valve stems, rams, plungers, pistons, hydraulics, steam hammers and various other applications.







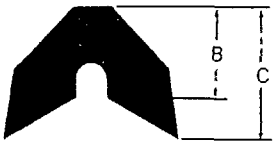
The following standard styles are available:



Adapters can be furnished from listed composition, reinforced phenolic and a variety of metals. Many composition and homogeneous compounds for special applications are available on request.



TOP ADAPTER



PRESSURE RING



BOTTOM ADAPTER

"U" rings to J.I.C. Standard Dimensions are available for volume production requirements.

Engineering data and drawings for specific applications and special materials are available upon request. Please direct your inquiry with as many details and conditions possible to Utex Industries, or your local Utex distributor.

Style		Description	Uses
Solid	Split		
701	701-2	Nitrile & Duck	General Service
708	708-2	Nitrile & Asbestos	General Service, High Temperatures
715	715-2	Neoprene & Asbestos	General Service, High Temperatures
805 (Pat)	805-2	Nitrile, TFE, Duck & Synthetic Cloth	High Pressure And Special Applications, Nuclear Services
827	827-2	Viton & Asbestos	High Temperature Fluids, Hydraulic Fluids
829 (Pat)	829-2	Butyl, Duck & Synthetic Cloth	Phosphate-Ester Hydraulic Fluids
830	830-2	Nitrile & Duck	Meets FDA Requirements
719	719-2	Homogeneous Nitrile	Cold & Warm Oils, Abrasive Resistant
831	831-2	Homogeneous Nitrile	Meets FDA Requirements
832	832-2	Homogeneous Butyl	Phosphate-Ester Hydraulic Fluids, Abrasive Resistant
828	828-2	Homogeneous Viton	High Temperature And Chemical Resistance
4510	4510-2	Virgin TFE	All Services Except Molten Alkali Metals & Hot Fluorine
4511	4511-2	Glass & Moly Filled TFE	Same As Above

For further fluid compatibility information, see Brochure 1300.

UTEX "V" PACKING DIMENSIONS

PKG. SIZE	A	B	C	D	L	M
1/8"	.125	.093	.140	.067	.087	.132
3/16"	.125	.125	.169	.067	.087	.132
1/4"	.187	.171	.236	.093	.134	.184
5/16"	.218	.203	.281	.109	.151	.223
3/8"	.250	.234	.325	.125	.170	.265
7/16"	.281	.265	.375	.140	.184	.306
1/2"	.375	.281	.403	.187	.265	.378
9/16"	.406	.296	.435	.203	.284	.420
5/8"	.437	.328	.468	.218	.298	.461
11/16"	.468	.359	.525	.234	.314	.504
3/4"	.531	.390	.568	.267	.362	.560
13/16"	.593	.421	.619	.296	.410	.615
7/8"	.656	.453	.665	.328	.456	.671
15/16"	.680	.484	.712	.340	.465	.709
1"	.718	.515	.756	.359	.490	.750
1-1/6"	.750	.546	.806	.375	.507	.796
1-1/8"	.781	.578	.853	.390	.523	.836
1-3/16"	.812	.609	.900	.406	.542	.875
1-1/4"	.843	.640	.945	.422	.556	.917

UTEX 000276

UTEX SPRING LOADED PACKINGS

Utex has taken the advantages of a mechanical seal and a mechanical packing, and combined them to produce a truly non-adjustable packing for reduced maintenance costs. Any of the numerous Utex "V" packings can be spring loaded for unattended operations.

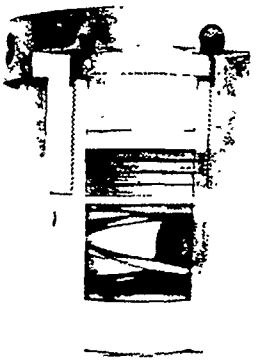
Utex Spring Loaded Packing takes all the guesswork out of packing installation...the gland is brought metal-to-metal, and once installed, no further adjustment is needed. Metal parts furnished with Utex Spring Loaded Assemblies are reusable.

Reduces excessive shaft wear from too-tight packing.

Reduces excessive stuffing box wear from too-loose packing.

With Utex Spring Loaded Packings, the packing tension is built-in.

UTEX STYLE 805-4 – Patented Spring Loaded Packing Assembly consists of the special Style 805 sealing rings, metal adapters and spring. Its unique construction features superior low friction and high abrasion resistant properties to make Style 805-4 a strong packing capable of reducing your maintenance problems.



Style 805-4 has been field tested in applications in all pressures up to 30,000 psi.

It is recommended for service in pumps handling water, acids, oils, and other high pressure fluids, including nuclear service. Metal parts are reusable.

Utex also spring loads various TFE compound "V" Rings. The compounds are produced in the proven Utex "V" design and have the well-known advantages of TFE: low friction, high chemical resistance, and others...and the advantage of a truly non-adjustable packing. It is recommended for use in severe caustic and acid service where a rubber compound would be attacked by the fluid, and in food service where TFE will meet FDA requirements. Furnished as a complete set with metal adapters and springs, the following is a list of the TFE compounds available:

Style	Sealing Ring Compound
4510-4	Virgin TFE
4511-4	Glass and Moly filled TFE
4512-4	Glass filled TFE
4513-4	Moly filled TFE

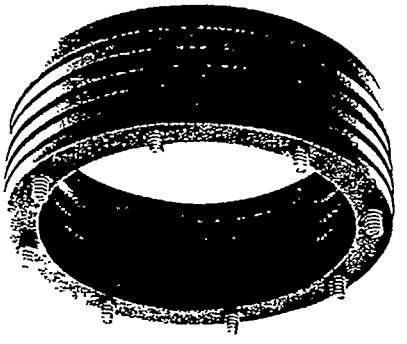
Both the Patented Style 805-4 and the Spring Loaded TFE Assemblies are available from Utex or your local Utex distributor. Each set of Spring Loaded Packing includes enough packing for one stuffing box, including metal top and bottom adapters, "V" rings and spring.

For engineered sales drawings, prices and technical information for your application, consult Utex or your local distributor. When inquiring, please furnish pertinent information and service.

STYLE 701-5

Utex Style 701-5 Multiple Spring Loaded Packing incorporates the proven "S" design "V" packing and multiple corrosion resistant springs for a non-adjustable packing. The use of spring loaded bottom adapters provides for automatic wear compensation and allows equipment to be designed with fixed stuffing box depths. The spring loaded feature eliminates the human error of over adjustment and extends packing life.

Utex Style 701-5 Spring Loaded Packing can be furnished in all sizes from a 1/4" cross-section minimum and up. For engineering information and drawings for your application, consult Utex Industries or your local Utex distributor.

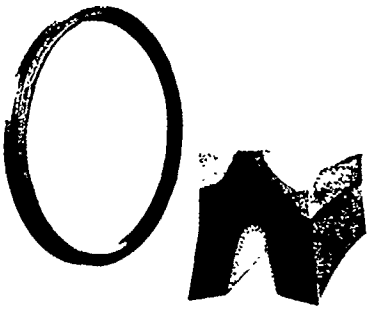


UTEX 000277

UTEX SERIES 1000 "K-SEAL" (Patented)

Utex "K-Seal" is a one-piece hydraulic packing engineered to provide excellent service. Unique construction allows the "K-Seal" to float in stuffing boxes without the need for metal pedestals or useless filler rings. This seal is designed to fit into existing stuffing boxes so there is no need for reworking or redesigning equipment.

The Utex "K-Seal" is manufactured from an oil resistant elastomer with energized lips, reinforced heel and independent non-extrusion backups molded into each corner. The reinforced heel absorbs some hydraulic fluid and acts as a wick to wet the ram or cylinder as the equipment operates. This wetting action lubricates surfaces, to reduce friction and wear. Independent thermosetting composition corners molded into the back of the ring



allow the "K-Seal" to conform to the stuffing box to prevent extrusion.

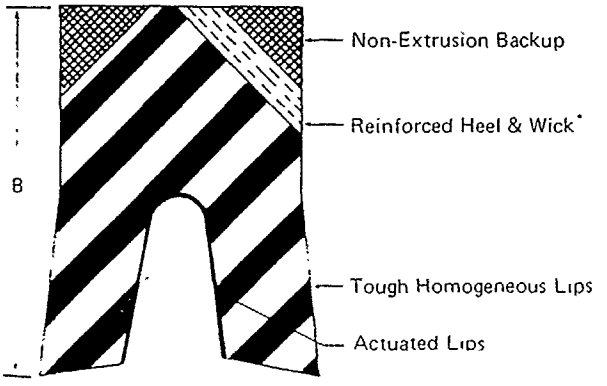
With the Utex "K-Seal," one ring is all that is required to pack a stuffing box. Designed for metal-to-metal gland makeup, there is no need for constant adjustment, once installed. No special break-in period or special adjustment is required with this seal.

The "K-Seal" has been field tested and will perform from zero to 15,000 psi at -70° to +450° F. depending on composition. The strength of the ring will stand up to the most severe conditions, even to the bumping action of hydraulic presses. The following is a list of standard materials available:

Style	Lip Composition
1000	Nitrile
1010	Viton
1020	Butyl

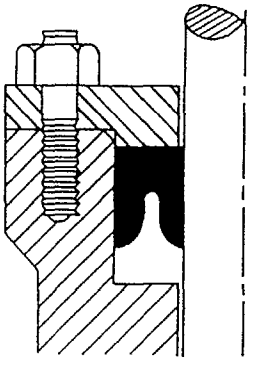
There is a "K-Seal" for use with the new fire-retardant phosphate-ester hydraulic fluids. For information concerning a "K-Seal" for your specific application, furnish dimensional data, type of equipment, and type of hydraulic fluid to Utex Industries or your local Utex distributor.

UTEX SERIES 1000 "K-SEAL" DIMENSIONS

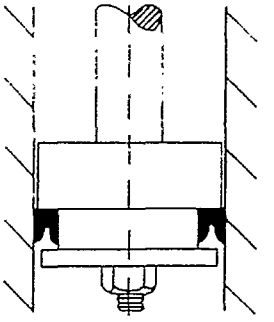


PKG. SIZE	B
1 2	5 8
5 8	7 8
3 4	1
7 8	1
1	1
1-1/4	1

*Reinforced heel & wick can be molded into ID or OD heel depending on installation.



RAM SEAL

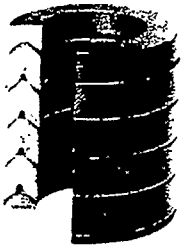


PISTON SEAL

UTEX 000278

UTEX "SS" DESIGN HEAVY DUTY HYDRAULIC PACKINGS

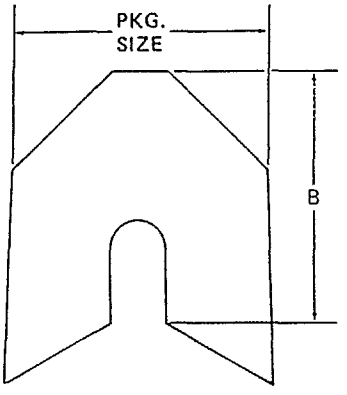
Utex "SS" Design Heavy Duty Hydraulic Packings incorporates an increased stack height to resist rollover and distortion for use in large hydraulic equipment. Normally supplied in complete sets comprised of a number of "V" rings with top and bottom adapters. Utex Style 1050 is produced from a high quality oil resistant Nitrile reinforced with duck. Style 1055 is produced from the same oil resistant Nitrile but reinforced with asbestos.



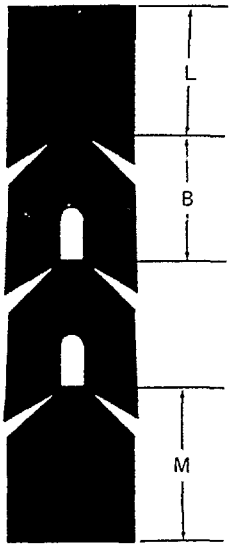
The unique design of both Style 1050 and Style 1055 provides a sealing ring that is sensitive to fluid pressures and responds to gland adjustments to reduce leakage when required.

Utex "SS" Heavy Duty Hydraulic Packings are recommended for use on large diameter rams, such as forging presses where shock loads are present. Also, for use on horizontal rams, such as extrusion rams where lateral thrust may be a problem. Special compositions are available on request for special hydraulic fluids. Please specify solid or split when ordering.

UTEX "SS" DESIGN HEAVY DUTY HYDRAULIC PACKINGS DIMENSIONS

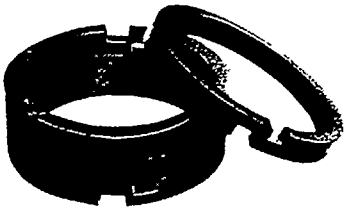


PKG. SIZE	L	M	B
1/2"	1/2	1/2	.500
5/8"	5/8	5/8	.625
3/4"	3/4	3/4	.750
7/8"	3/4	3/4	.750
1"	3/4	3/4	.750
1-1/8"	3/4	3/4	.750
1-1/4"	3/4	3/4	.750



STYLES 781 & 782 MOLDED PISTON RINGS

Utex Molded Piston Rings are manufactured from a high quality reinforced Nitrile composition. Molded with a rectangular cross-section and precise dimensional tolerances. Utex molded piston rings are available to fit all standard piston pumps. Style 781 is molded with a step-cut with built-in tension, while Style 782 is molded solid. Both Styles 781 and 782 are designed to replace the hydraulic duck and rubber rings. Styles 781 and 782 show good abrasion resistance in general industrial and boiler feed service.



UTEX 000279

UTEX URON CUPS

TYPE "CA" URON CUPS

Utex Type "CA" Uron Cups are manufactured from an oil resistant Nitrile and duck composition and molded with a 45° beveled bottom.

Molded under high temperatures and pressures. Uron cups are tough and abrasive resistant. Type "CA" Uron Cups are recommended for hot and cold oils, water or oil base fluids, mild chemicals and acids, and many other services.



Availability: Utex Style 855 Type "CA" Uron Cups are hard-cure composition cups. In addition to the above, Style 855 shows good resistance to petroleum hydrocarbons with little or no softening at high temperatures.

Utex Style 856 Type "CA" Uron Cups are medium-cure composition cups.

Both Styles 855 and 856 are available in standard sizes 1" and up. Consult Utex for special sizes or compositions.

TYPE "CB" URON CUPS

Utex Type "CB" Uron Cups are manufactured from the same high quality materials as the Type "CA," but are molded with rounded bottoms, and recommended for the same services as Type "CA" Cups.

Utex Style 860 Type "CB" Uron Cups are produced in the standard hard-cure.

Utex Style 861 Type "CB" Uron Cups are produced in the standard medium-cure.

Both Utex Styles 860 and 861 are available in standard sizes, 1" and up, and can also be furnished in special sizes or compositions on request.



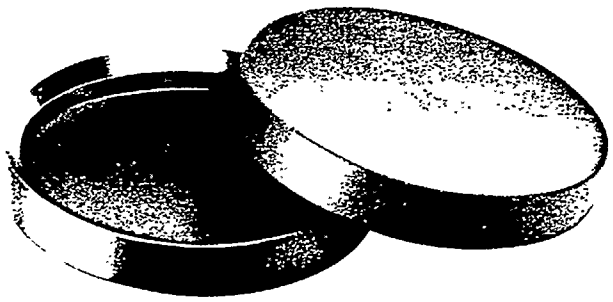
TYPE "CD" URON CUPS

Utex Type "CD" Uron Cups are manufactured from a special oil resistant reinforced elastomer and designed to seal at both low and high pressures. Molded under high temperatures and pressures, Type "CD" Uron Cups are produced with flat bottoms.

Utex Style 864 Type "CD" Uron Cups are produced in the standard soft-cure composition.

Type "CD" Cups are used in hydraulic and pneumatic piston applications in service against water, oil, gas, air, and other hydraulic mediums.

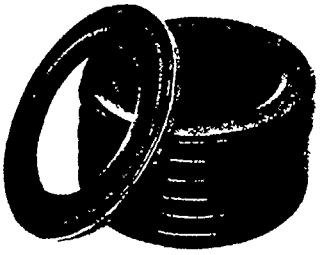
Utex Type "CD" Uron Cups are furnished in standard diameters with solid bottoms, unless hole size is specified. Special compositions are available for chemical, acid, and many other services.



UTEX 000280

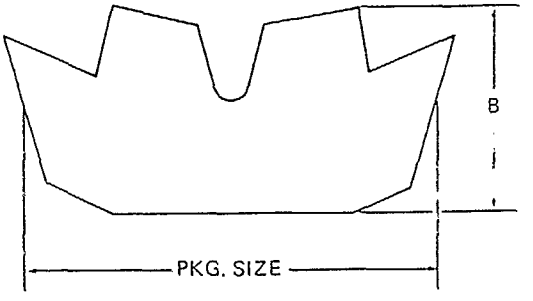
UTEX "WF" DESIGN "SHORT STACK" PACKINGS (Patent Pending)

Utex "WF" Design "Short Stack" Packing is an automatic sealing packing for use in dynamic applications where limited packing cavities are encountered. Produced from a variety of elastomers, either homogeneous or reinforced compositions, the unique Utex "WF" design offers these important features:



1. The short stack height allows for more compact piston designs, to allow longer strokes in shorter cylinder lengths.
2. With the unique design, no space wasting adapters are required. Each ring is a sealing ring.
3. Automatic sealing feature allows the rings to seal with a minimum of gland pressure and the packing to run cooler and longer.
4. Since no adapters are required, there is no need for stocking "Short Stack" in sets. Therefore, greater inventory flexibility is achieved.

UTEX "WF" DESIGN "SHORT STACK" PACKING DIMENSIONS



PKG. SIZE	B
1/4"	.125
5/16"	.156
3/8"	.188
7/16"	.219
1/2"	.250
9/16"	.281
5/8"	.313

The following standard styles are available:

Style		Material	Service
Solid	Split		
888	888-2	Nitrile Reinforced Composition	Mineral Base Oils, Gasoline, Kerosene, Hot & Cold Oils, Water, Hydraulic Fluids
889	889-2	Nitrile & Duck	Hot & Cold Oils, Water, Mild Chemicals and Acids, Petroleum Products
890	890-2	Nitrile & Duck	Food Service - meets FDA Requirements
892 (Pat)	892-2	Butyl, Duck & Synthetic Cloth	Phosphate-Ester Hydraulic Fluids
894	894-2	Viton & Asbestos	High Temp. Fluids
891	891-2	Homogeneous Nitrile	Food Service - meets FDA Requirements
893	893-2	Homogeneous Butyl	Phosphate-Ester Hydraulic Fluids
895	895-2	Homogeneous Viton	High Temp. and Most Phosphate-Ester Hydraulic Fluids.
896	896-2	Homogeneous Nitrile	Cold and Warm Water, Oils Where Abrasion Resistance is required.

Many composition and homogeneous compounds for special applications are available on request.
For further fluid compatibility information, See Brochure 1300.

UTEX 000281

UTEX "WWF" DESIGN "TALL STACK" PACKINGS (Patent Pending)

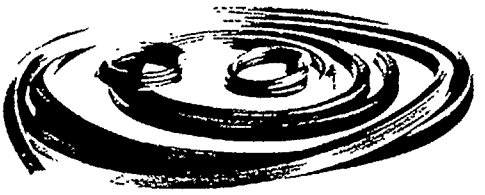
Utex "WWF" Design "TALL STACK" Packings have been engineered to provide excellent service under most conditions. All "WWF" packings are designed for self-seating and do not require top and bottom adapters or mating rings.

Utex Style 808 "WWF" sets are designed for use in centrifugal pumps. Style 808 "WWF" sealing rings are manufactured from a tough abrasion and heat resistant Nitrile and incorporate a molded lantern ring in the assembled set.

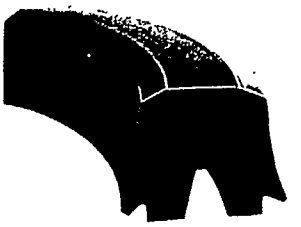
Utex Style 880 - Nitrile and duck composition, and Styles 881 & 882 - reinforced Nitrile composition "WWF" seal rings are the ideal replacement for the old fashioned "U-Cups." All "WWF" seal rings fit the same J.I.C. Standard cavities but do not require the pedestal rings as do the "U-Cups."

Utex Style 883 "WWF" (Patented) seal rings are designed for use where extrusion is a problem between box and gland. Style 883 has a homogeneous Nitrile lip with a fabric reinforced heel to reduce extrusion from excessive clearances, thus reducing the primary cause of packing failures in older equipment.

The unique Utex "WWF" design is also available in continuous extrusions. Continuous "WWF" extrusions are produced from various elastomer bases and are available in cross-sections from 1/4" through 1-1/4". This use of continuous "WWF" allows immediate delivery of packing sets, thus cutting delivery and downtime to the bare minimum.

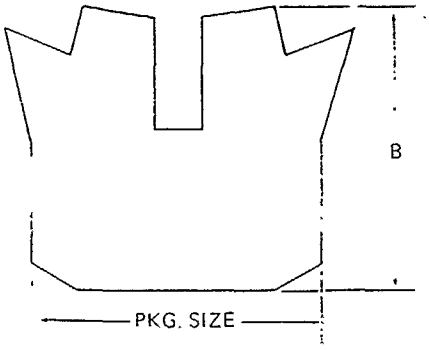


STYLE 883

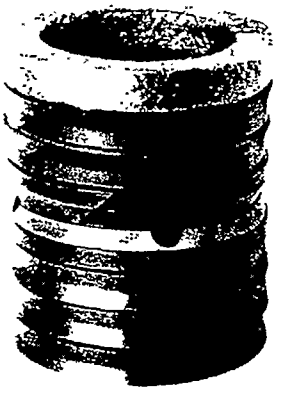


CUTAWAY STYLE 883

UTEX "WWF" DESIGN "TALL STACK" PACKING DIMENSIONS



PKG. SIZE	B
3/16"	.188
1/4"	.250
5/16"	.312
3/8"	.375
7/16"	.437
1 2"	.500
9/16"	.562
5/8"	.625
11/16"	.687
3/4"	.750
13/16"	.812
7/8"	.875
15/16"	.937
1"	1.000
1-1/8"	1.125
1-1/4"	1.250



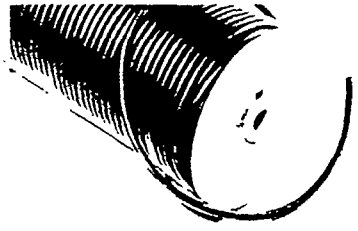
STYLE 808

UTEX 000282

STYLE 879 MOLDED PIPE TESTER SEALS

Utex Style 879 Molded Pipe Tester Seals are produced from a special oil and abrasion resistant elastomer. Molded into the inside diameter corner is a special garter spring to insure proper sealing. Designed to fit most pipe testing equipment, these proven seals withstand the most strenuous test procedures and provide satisfactory seals up to all yield pressures. For complete size and detailed engineering drawings and specifications contact Utex Industries.

UTEX CONTINUOUS STRIP EXTRUSIONS



STYLE 361

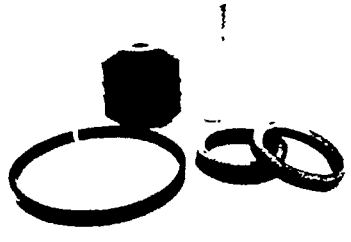
Utex manufactures an extensive line of extruded elastomers in various shapes and sizes. Extruded from both homogeneous and reinforced elastomers. Utex has a compound to meet most applications.

The following is a list of some of the standard extrusion materials:

Style	Compound
361	Neoprene
362	Silicone
363	Nitrile
364	Viton

Most Utex Continuous Strips are available with vulcanized joints for use as seals where cross-section and size prohibit solid molded seals. Standard round cross-sections are available, depending on composition, in sizes of 1/16" to 1". When ordering, please specify size and shape.

COMPOUND "5000" PUMP AND COMPRESSOR PARTS



Utex is currently supplying industry with products coated, molded, and machined from Compound "5000" polyphenylene sulphide (PPS) for reduced maintenance costs. Coatings of Utex Compound "5000" are applied to: springs, spring followers, vanes, packing adapters, compressor and pump parts. Among the molded and machined products produced from Compound "5000" and its alloys are: bushings, non-extrusion rings, spring followers, vanes, packing adapters and compressor and pump parts.

Utex Compound "5000" has the following important properties:

1. High dimensional stability;
2. Resistant to cold flow;
3. Resistant to corrosive fluids;
4. Low coefficient of friction;
5. High strength;
6. Wear resistance;
7. Non-flammable;
8. High strength weight ratio.

Compound "5000", PPS, may be alloyed with different materials to achieve various properties required for specific applications.

"5001" Alloyed with asbestos.
"5002" Alloyed with TFE and asbestos.
"5003" Alloyed with glass.
"5004" Alloyed with glass & TFE.
"5005" Alloyed with graphite.
"5006" Alloyed with TFE.

Compound "5000" has an extremely high use temperature range and its outstanding chemical resistance permits its use in numerous chemical environments such as oils, greases, hydrocarbons, ketones, liquid ammonia, most aqueous acids and bases, and nuclear services. Compound "5000" has no known solvents below 400°F. It is classified as non-burning and non-drip when tested in accordance with ASTM D635.

Utex Compound "5000" has outstanding resistance to heat and can be used at high temperatures for prolonged periods of time.

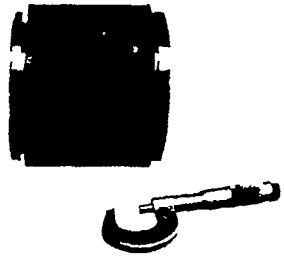
Utex Industries will coat your products with Compound "5000." When inquiring, furnish complete details for prices and delivery. For PPS molded or machined items, send compressor or pump make, model, or specifications on parts required.

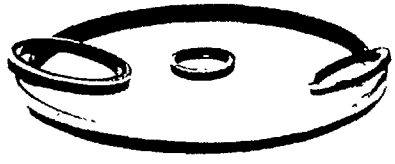
UTEX 000283

PRECISION MOLDED SPECIALTIES

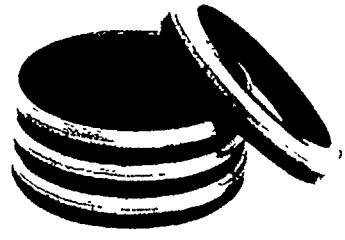
ENGINEERING - and know-how go hand in hand at Utex. Let us assist you in the proper selection of materials and design for your particular application.
SERVICE - Our complete facilities for molding, making molds and dies, compounding, designing and engineering assure you that all orders, large or small, receive our prompt attention.
WORKMANSHIP - Highest standards are strictly maintained in formulating, processing, molding, inspection and finishing of each product.
COMPOUNDS - Numerous performance proven compounds and compositions of elastomers or plastics, either thermosetting or thermoplastic, are available, many are carried in stock in large quantities for immediate use.

Utex Industries has been instrumental in many sealing technology firsts which have become industry standards. Our continuing search for better than ordinary sealing systems warrants your inquiries for sealing requirements.

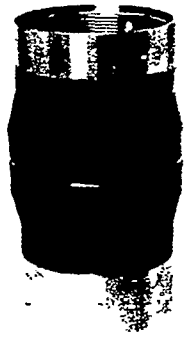










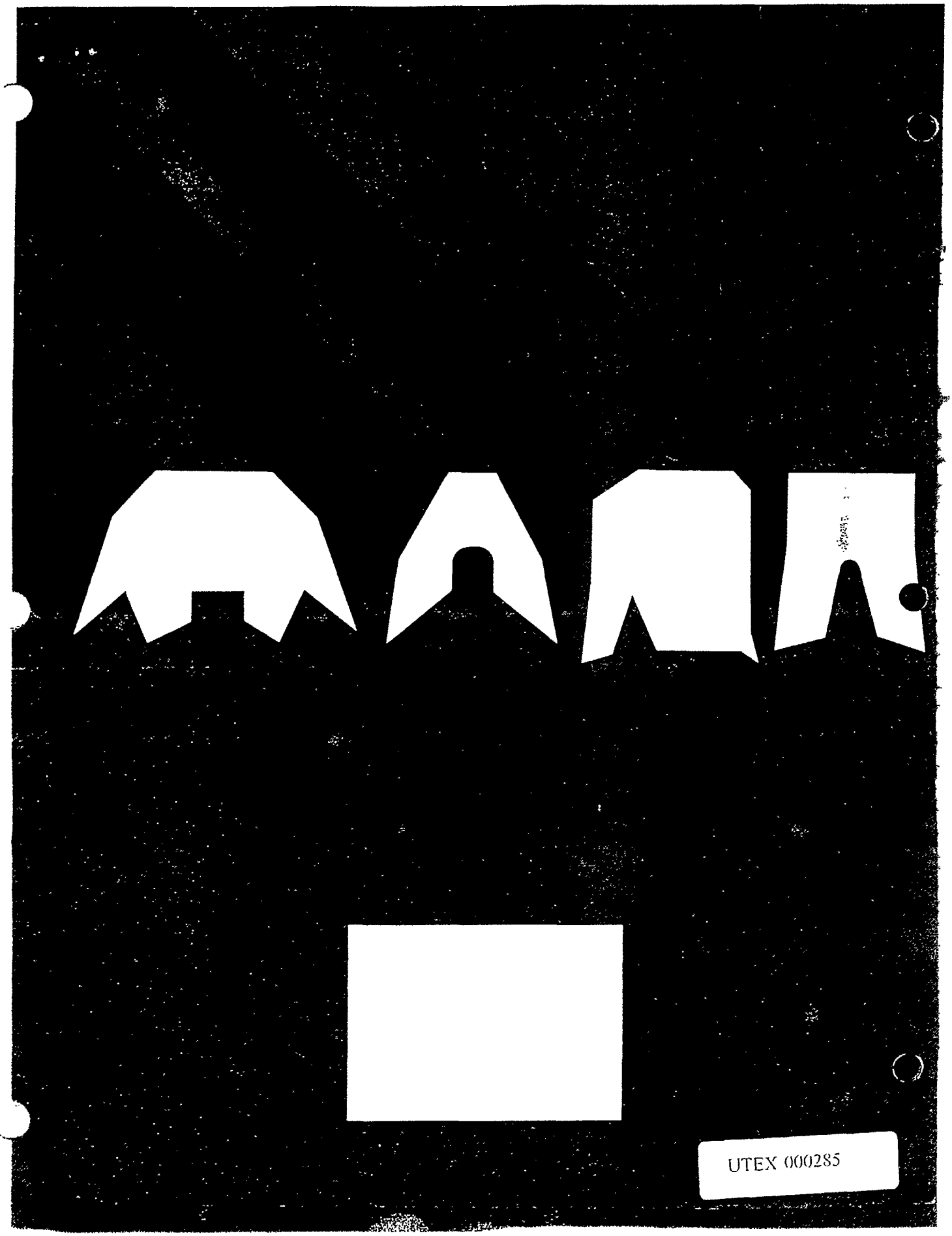




UTEX INDUSTRIES, INC.

Houston, Texas

UTEX 000284



UTEX 000285