

# **Apak** Mechanical Packing

# Elevating Seal Value to the Industry's Summit



**Apak A-10** is braided from pure expanded mineral graphite twisted yarn with exceptionally low carbon content. This results in long-lasting packing, featuring a low coefficient of friction, excellent heat transfer properties and exceptional chemical resistance.

### Always the best solution to control:

- •Excessive leakage
- •High surface speeds
- •Chemically aggressive fluids
- •High temperature fluids
- •Abnormal scoring on shafts
- •Frequent packing replacement

# Apak A-10



#### Superior benefits such as:

- •Resilient, flexible and compactable
- •Self-lubricating, and no cold flow
- •No deterioration due to age
- •Can be modified into endless ring
- •High purity of graphite content
- •Expandable and fire safe
- •Reduces product loses
- •Reduces power consumption

Purity of Graphite Content	99%
pH Range	0 to 14
Temperature Range	Cryogenics -392 °F (-200 °C) +6000°F (3300 °C) non oxidizing atmosphere +932°F (500 °C) oxidizing atmosphere +1202°F (650 °C) steam
Pressure limits	Pumps Max 500psi ( 35 BAR) Valves Max 3000psi (207 BAR)
Max. Shaft Speed	5000 ft./s (20 m / s)

Size	1/8''	5/32''	3/16''	1/4''	5/16''	3/8''	7/16''	1/2''
Ft/LB	115	75	50	30	20	14	10	8
Size	9/16''	5/8''	11/16''	3/4''	13/16''	7/8''	15/16''	1''
Ft/LB	6	5	4	3.8	3.4	2.8	2.5	2.2

mm	3	4	5	6	7	8	10	11	12	
M/Kg	90	50	32	23	17	13	8.3	7	5.8	
mm	13	14	15	16	18	19	20	22	24	25
M/Kg	4.9	4.5	4	3.5	2.7	2.5	2.2	1.9	1.7	1.5



It is a soft flexible packing constructed by x-braiding pure PTFE with graphite. An economical substitute to the Gore Fiber™



#### APPLICATION

For use in pumps, valves, mixers and agitators. Especially designed for services involving surface speeds and temperature higher than those normally specified for packing manufactured from pure FTFE filaments. Can be safely used in all chemical pump applications with the exception of molten alkali metals, fluoride, oleum, fuming nitric acid, aqua regia and other strong oxidizing agents. It is also suitable against water, steam, petroleum derivatives, vegetable oils and solvents.

Color pH Range Temperature Range Max. Shaft Speed	Black 0 to 14 -122°F (-85 °C) to 550°F ( 288°C) 66 ft./s (20 m / s) 2 020 pci (140 h or)
Max. Pressure	2,030 psi (140 bar)

Size	1/8″	3/16″	1⁄4″	5/16″	3/8″	7/16″
Ft./lb.	76.95	40.23	22.63	14.48	10.06	7.39
Size	1⁄2″	9/16″	5/8″	3⁄4″	7/8″	1″
Ft./lb.	5.66	4.47	3.62	2.51	1.85	1.41

Size	3	4	5	6	8	10	11
M/Kg	68.05	38.8	24.5	17.01	9.57	6.12	4.97
Size	12	14	16	18	20	22	25
M/Kg	4.25	3.12	2.39	1.89	1.53	1.27	1.02



The Apak 14 is a special high temperature Carbon yarn with Inconel wire, braided over a flexible resilient non-asbestos core. The Carbon yarn encapsulates the Inconel wire to stop stem wear. The packing is thoroughly impregnated with graphite and treated with a sacrificial material to stop electrolytic reaction.



### APPLICATION

Recommended for high-temperature high-pressure valve application.

pH Range	1-12
Temperature Range	1202 °F (650°C)
Max. Pressure	3,916 psi (270 bar)

Size	1/8"	3/16"	1⁄4″	5/16"	3/8"	7/16"
Ft./Ib.	75	39	25	12.5	9.4	7.1
Size	1⁄2″	9/16"	5/8"	3⁄4″	7/8"	1"
Ft./Ib.	6	4.4	3.8	2.6	1.5	0.94

mm	3	4	5	6	8	10	11
M/Kg.	68	38	25.1	17.1	9.6	6	5.05
mm	12	14	16	18	20	22	25
M/Kg.	4.3	3.1	2.4	1.9	1.6	1.5	0.98



The Apak A-32 is a high quality gland packing, constructed by x-braiding a special PTFE yarn, which incorporates graphite and high temperature lubricant.

4.37

M/Kg

3.21



#### APPLICATION

Centrifugal, rotary and reciprocating pumps; air, water, sea water, brines, super heated steam, sludge, slurries, waste, petroleum oils, petroleum fuels, solvents, chemicals, liquefied gas.

Superior general-purpose pump packing for all industries except food and drink. Virtually all fluids can be handled with the exception of molten alkali metals and strong oxidizing agents such as oleum aqua-regia and fuming nitric acid.

					4		
Temp Max.	r ange berature Ra Shaft Spee Rotating p	ed	72 ft./ s	(-240°C) to (22 m / s (20 bar)	•	°C)	
Size	e 1/8″	3/16	" 1/4"	5/16	" 3/8"	7/16	"
Ft./lb	o. 53.3	40	22	13.1	9.5	6.6	
Size	. 1/2"	9/16	" 5/8"	5/8" 3/4"		1″	
Ft./lb	o. <u>5.84</u>	4.2	3.3	2.6	1.9	1.5	
Size	3	4	5	6	8	10	1
M/Kg	69.98	39.37	25.19	17.5	9.84	6.3	5.1
	1	1				1	
Size	12	14	16	18	20	22	2

2.46

Apex Sealing Inc., 164B Yankee Park Rd., Fairfax, VT, 05454, USA toll free 888.730.2739, phone 802.524.7100, fax 802.524.7112, Email: sales@apexsealing.com, web www.apexsealing.com

1.94

1.57

1.3

1.01





Apak A-35

New and unique construction. Reduces shaft wear, seals rotary pumps with virtually no leakage. Requires no flush water in most applications. The A-35 is manufactured from exfoliated graphite yarn. Each yarn is reinforced with high strength, low friction carbon yarn. The corners are reinforced with carbon yarn, and inorganic inhibitor is added to eliminate electrolytic reaction. It is self-lubricating and minimizes shaft wear.

#### APPLICATION

Boiler feed pumps. paper mills, condensate, black liquor, white and green liquor, waste water treatment plants, agitators, mixes and valves.

pH Range Temperature Range	0 to 14 Except in strong oxidizers 1202°F (650°C) Steam 842°F (450°C) Oxidizing atmosphere	
Shaft Speed Pressure Limit	66 ft./s (20 m / s) 4000 psi (275 bar) valves	

Size	5	6	8	10	12	14	16	18	20	22	25
M/Kg	30.2	22	12.5	8.1	5.2	3.95	3	2.6	1.95	1.7	1.3



## Apak A-78D

A firm high density PTFE filament packing used in valves or lower shaft speed applications. X-braid, using pure PTFE filament pretreated with PTFE dispersion



#### APPLICATION

Recommended for all types of chemicals, aggressive fluids, gases and solvents, with exception of molten alkali metals. It is especially suited for oxygen or other services where no organic materials or lubricants other than PTFE are allowed.

Color pH Range Temperature Rar Max. Shaft Speed	d 7 ft/s (2 m/s)
Max. Pressure	2,176 psi (150 bar)

Size							
mm	4	5	6	8	10	12	14
M/Kg	38.5	25	17.25	9.81	6.25	4.35	3.19
Size							
mm	15	16	18	20	25	30	
M/Kg	2.8	2.46	1.93	1.6	1	0.7	



## Apak A-78L

A pliable and soft, yet dimensionally stable packing, which has excellent lubricant and running characteristics. X-braid, using pure PTFE filament pretreated with PTFE dispersion plus a break-in lubricant to reduce the friction coefficient as well as the frictional heat created under high shaft speeds.



#### APPLICATION

It is suited for high-speed rotary shaft service, and handles all acids, alkalis and most chemicals, with the exception of molten alkali metals.

Color	White
pH Range	0 to 14
Temperature Range	- 121F °(-85°C) to 550F °(288°C)
Max. Shaft Speed	26 ft/s (8 m/s)
Max. Pressure	2,176 psi (150 bar)

Size	3	4	5	6	8	10	11
M/Kg	68.89	37.07	23.72	16.47	9.27	5.93	4.81
Size	12	14	16	18	20	22	25
M/Kg	4.12	3.03	2.32	1.83	1.48	1.23	0.98

Size	1/8″	3/16″	1⁄4″	5/16″	3/8″	7/16″	1⁄2″	9/16″	5/8″	3⁄4″	7/8″	1″
Ft./lb.	72	31	19.4	12.5	9	7	5.1	4.1	3.3	2.3	1.7	1.2



PTFE and Aramid fiber packing. A pliable, rugged and abrasive resistant packing, which has excellent lubricity and running characteristics. Interlock braid. Good chemical resistance.



### • APPLICATION

Excellent for use in mixers, stock pumps and agitators.

Color	White
pH Range	1 to 13
Temperature Range	to 550°F (288°C)
Max. Shaft Speed	1500 ft/min
Max. Pressure	500 psi (35 bar)

Size	1/8″	3/16″	1⁄4″	5/16″	3/8″	7/16″	1⁄2″	9/16″	5/8″	3/4″	7/8″	1″
Ft./Ib.	90	50	26	18	10	8	6.2	5.1	4.1	3.2	2.6	1.6





The Apak A-80 is gland packing with special syntex fiber, with each strand impregnated with PTFE dispersion both prior to and after braiding. Finished packing also has a break-in lubricant. Asbestos replacement packing for general service applications. Good chemical resistance.



### APPLICATION

Excellent multi-service packing for a wide variety of uses throughout a plant. Recommended for use in steam, water, solvents, oils, most chemicals, mild acids and alkalis.

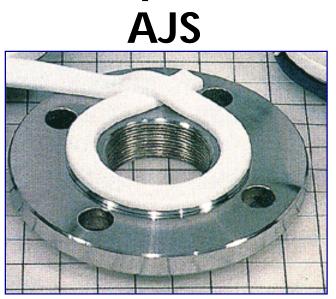
Color	White	
pH Range	3 to 12	
Temperature Range	-40°F ( -40°C) to 436°F ( 260°C)	
Max. Shaft Speed	43 ft/s (13 m / s)	

Inch	1/8″	3/16″	1⁄4″	5/16″	3/8″	7/16″	½″	9/16″	5/8″	3⁄4″	7/8″	1″
Ft./lb.	80	40	22.8	16	11.4	8.8	6.6	4.7	3.6	2.6	2	1.5

Size	3	4	5	6	8	10	11
M/Kg	65.03	36.58	23.41	16.26	9.14	5.85	4.74
Size	12	14	16	18	20	22	25
M/Kg	4.06	2.99	2.29	1.81	1.46	1.21	1.05



Apak AJS is manufactured from pure PTFE. It is a superior and cost effective alternative to standard gasket sheets. Flexible and economical, it is fast and easy to cut and install. Resists cold flow.



Apak

#### APPLICATION

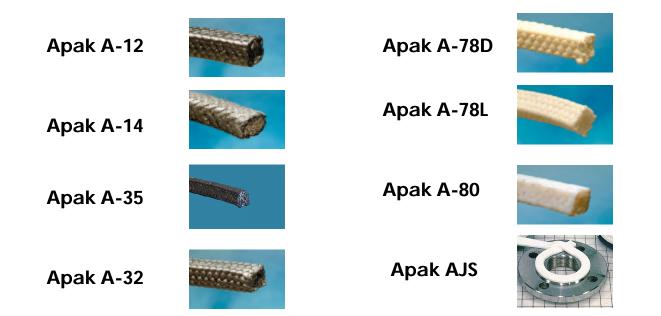
Ideal for complex or large gaskets and for re-sealing damaged, worn or distorted flanges.

Standard	d Siz	es		
3 mm	Х	1.5 mm	Х	30 M
3 mm	Х	2 mm	Х	30 M
5 mm	Х	2 mm	Х	30 M
7 mm	Х	2.5 mm	Х	20 M
6 mm	Х	3 mm	Х	20 M
9 mm	Х	4 mm	Х	15 M
10 mm	Х	3 mm	Х	10 M
10 mm	Х	4 mm	Х	10 M
10 mm	Х	5 mm	Х	10 M
12 mm	Х	4 mm	Х	10 M
14 mm	Х	5 mm	Х	10 M
16 mm	Х	4 mm	Х	10 M
20 mm	Х	4 mm	Х	10 M
25 mm	Х	4 mm	Х	5 M
30 mm	Х	4 mm	Х	5 M
40 mm	Х	4 mm	Х	5 M
50 mm	Х	3 mm	Х	5 M



### Apak Mechanical Packing Industry Comparison Chart

АРАК	CHEMSTAR	CHESTERTON	CRANE	GARLOCK	JM	PALMETTO	RM	SEPCO	SLADE	TEADIT	UTEX
<u>A-12</u>	3165	1760	C1070	PM - 6			846	ML - 8002		2007	244
				127AFP /							
<u>A-14</u>	1414	1800	387 - 1	1200PBI	333	4062AF	925	ML - 310		2214	683 / 684
			C - 1065								
<u>A-32</u>	165 LA	1750	CGF	5100				ML - 4002			210
<u>A-35</u>	1100 CR	1400R	G57						3300G	2202	687
					VX - 1 /						
<u>A-78D</u>	154	1724 / 324	C - 1045	5888 / PM - 7	VX - 2	1367H	847	ML - 2254		2005	232
<u>A-78L</u>	154-S	328 / 1728	C - 1050	5889 / PM - 8	CX - 1	1367S	849	ML - 2235		2006 S	231
<u>A-80</u>	1152	1710 / 412-W	1335	8922 PM - 1	C - 47, 49	1347AF	941	ML - 2225		2019/8	237





### **EZ-PAK** INJECTABLE PUMP & VALVE PACKING

EZ-PAK is a carefully controlled blend of high-tech greases and lubricants combined with modern fibers resulting in a superior product. Its malleable consistency makes it easy to use. It can be injected with a high-pressure gun or installed by hand. Unlike braided packing, no cutting is necessary. It will conform to any size stuffing box and seal it.





### EZ-PAK INJECTABLE PUMP & VALVE PACKING

✓ Combines the latest chemistry and fiber technology

✓ A malleable, putty consistency makes installation easy

✓ Conforming to any shape it will seal even worn shafts

✓Low coefficient of friction results in lower operating temperatures

✓ Self-lubricating; needs no flush or cooling water

✓Long lasting, will not dry out or harden

✓ Packaged in durable, compact, easy to use and store containers

- ✓ Prevents leakage
- ✓Lowers operating costs
- ✓ Reduces maintenance time and costs
- ✓ Saves energy
- ✓ Reduces shaft and sleeve wear
- ✓Extends equipment life
- ✓ Reduces or eliminates downtime

Apex Sealing Inc., 164 B Yankee Park Rd., Fairfax, VT, 05454, toll free 888.730.2739, phone 802.524.7100, fax 802.524.7112, Email: sales@apexsealing.com, web www.apexsealing.com

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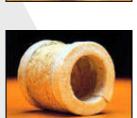
**EZ-PAK 72**: Cream color, Natural Fibers with PTFE and special lubricants, for use with water, sewage, mild acids, mild caustic, brine and seawater.

**EZ-PAK 74 :** Black color: High performance sealant containing GFO<sup>™</sup>, for use in high-speed applications, Temp. 500° F, pH 0-14, Speed 4300 fpm, Pressure 300 psi (rotary/centrifugal)

**EZ-PAK 75 :** White PTFE sealant suitable for food and potable water, Temp, 500° F, pH 0-14, Speed 1500 fpm, Pressure 300 psi (rotary/centrifugal)

**EZ-PAK 7700 :** Combination of Kevlar® and Teflon® Fibers with special synthetic lubricants. PH: 2-13, Pressure: 300, PSI.Temp. 500° F, Shaft Speed: 2200 FPM. For use in pulp and paper industry, sewage, slurries and seawater.

**EZ-PAK 2000 :** Black High Temperature sealant, blended with flexible graphite. For use in hostile environments, high temperature pumps and valves, Temp. 1200° F, pH 0-14, Speed 4000 fpm, Pressure 250 psi





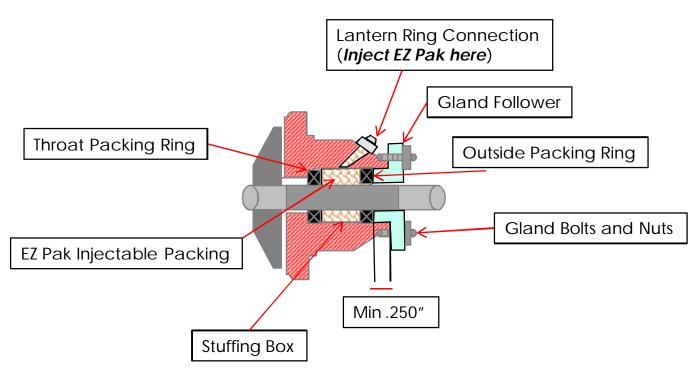












- 1. Shut off seal water and lube inlet and install fitting.
- 2. Remove old packing and lantern ring.
- 3. Inspect and clean shaft and gland.

4. Install compatible braided packing ring in the bottom of the stuffing box; cut on 45° angle from top to bottom.

5. Pack sealant tightly insuring there are no voids.

6. Add Packing until just enough space is available to install braided top ring in the stuffing box.

7. Hand tighten gland bolts, very snuggly, turn on pump and let it run for 15 minutes.

8. if any leakage should occur, gradually tighten gland bolts, one flat at a time, until all leakage stops.

#### Do not over tighten.

*In Valves*, simply remove old packing, install bottom braid ring, add EZ Pak, install top ring, snugly tighten follower nut.

### PumpRite, Inc.

Sales@pumprite.com www.pumprite.com 630-543-7867