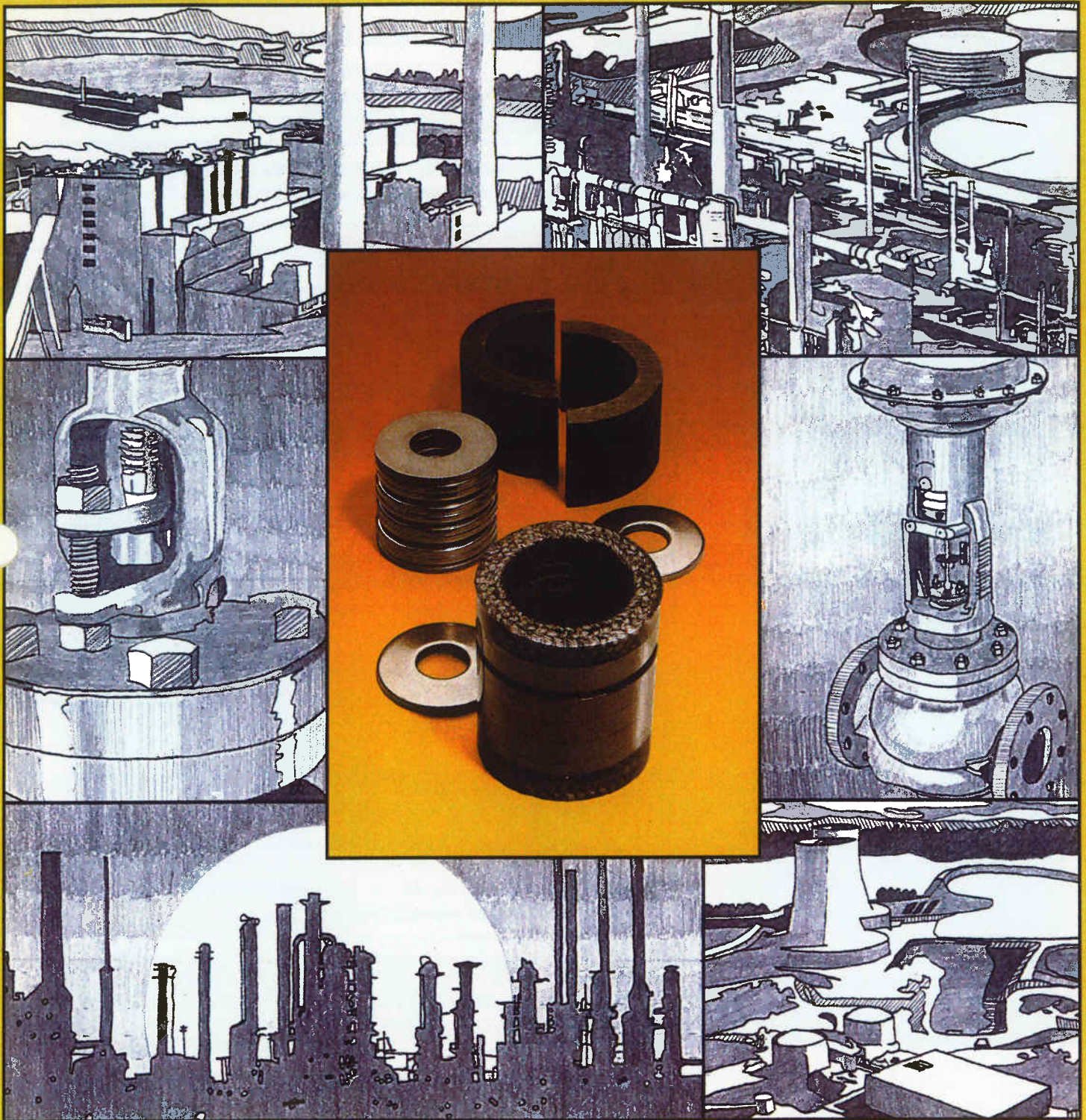




ISO 9002-94
Cert. #001762

9000 EVSP Simplified

*the sensible solution to demanding
valve sealing requirements*



The Environmental Choice

Garlock

Style 9000 EVSP Simplified - *Expandable Valve Stem Packing* - is designed to provide optimum sealability in even the most severe environments.



At the Garlock on site fire test facility, valves and sealing materials are functionally tested in the most extreme applications. 9000 EVSP Simplified meets these stringent fire test standards.

The main sealing components of the 9000 EVSP Simplified are manufactured from Garlock GRAPH-LOCK®. These high purity flexible rings are die-formed in a "cup and cone" configuration with varying densities. This innovative design allows selective component compression and controlled radial flow resulting in effective sealing on both the I.D. and O.D.*

Style 98, made from LATTICE BRAID® high purity carbon yarn, is supplied as end rings. These end rings contain the flexible graphite, functioning as both wiper rings and anti-extrusion rings.

*Patent #4,328,974



Selection criteria for your valve sealing system

SEALABILITY

Exceeds the most stringent VOC regulations and hazardous emission standards

FIRE SAFETY

Passes API 607 and API 589
Passes Garlock kerosene fire test

CHEMICAL COMPATIBILITY

0-14 pH range (except strong oxidizers)

TEMPERATURE CAPABILITY

+1200° F (+650° C) steam
+850° F (455° C) atmosphere

PRESSURE CAPABILITY

10,000 psi plus

RESISTANCE TO VOLUME LOSS

Testing by AECL confirms less than 2% in-service consolidation

SEALING CAPABILITY UNDER WORN VALVE CONDITIONS

More than double the radial expansion capabilities of conventional flat ring set design

REDUCED FRICTION CAPABILITY

15%-25% less than flat ring sets

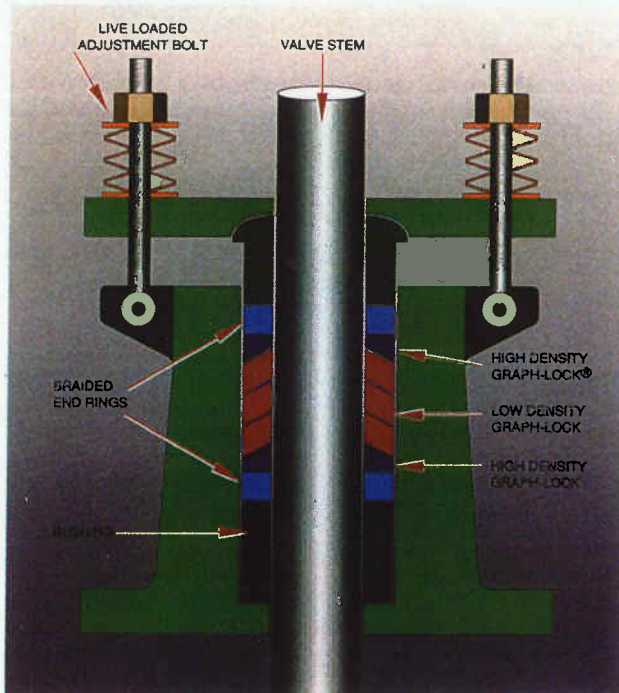
LIVE LOADING

Live loading is designed to provide gland load retention, compensating for expected in-service consolidation of the packing. A set of disc-spring washers placed on each gland stud bolt between the gland flange and gland bolt nuts helps to exert a continuous compressive force on the gland follower flange and, therefore, the packing set.

Garlock recommends live loading for:

- Valves that are frequently cycled
- Valves where appropriate installation practices cannot be adhered to
- Critical service applications
- Severe thermal cycling applications

Garlock engineers will computer design your live load configuration based on individual valve criteria.



CUSTOM DESIGN CAPABILITIES

The 9000 EVSP Simplified set can be adapted to various stuffing box depths and conditions.

- The patented design expands radially on both its I.D. and O.D. to seal in worn or altered valves.
- Concept can be engineered to fit stuffing boxes as shallow as two cross-sections. Different end ring material may be required.
- Machined bushings can be supplied for deep stuffing boxes.
- Live-loading hardware sets can be supplied as required.

Style #4525 high purity carbon bushings

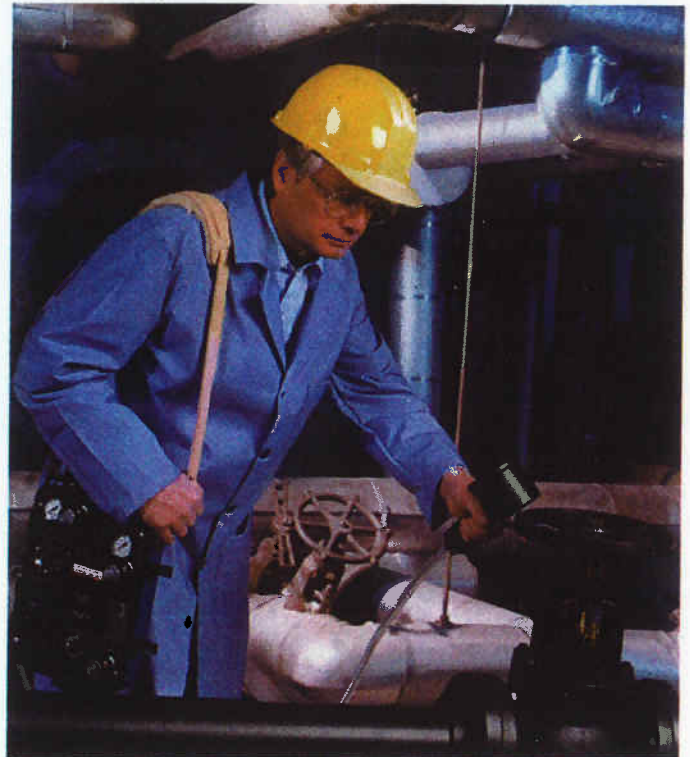
For proper performance of any packing set it is very important to compress all rings in the set. In order to assure this, Garlock recommends the use of high purity carbon bushings to shorten existing deep stuffing boxes.

Engineering Data:

Material Purity:	99.5% minimum carbon assay
Temperature:	+1200°F (+650°C) steam; +850°F (+455°C) atmosphere
pH:	0-14 (except strong oxidizers)

Style #4525 can be certified for nuclear service. Supply detailed specifications for review.

Alternative bushing materials are available on request. Contact Garlock Technical Services for special requirements.



WARNING:

Properties/applications shown throughout this brochure are typical. Your specific application should not be undertaken without independent study and evaluation for suitability. For specific application recommendations consult Garlock. Failure to select the proper sealing products could result in property damage and/or serious personal injury.

Performance data published in this brochure has been developed from field testing, customer field reports and/or in-house testing.

While the utmost care has been used in compiling this brochure, we assume no responsibility for errors. Specifications subject to change without notice. This edition cancels all previous issues. Subject to change without notice.

CASE HISTORIES

The 9000 EVSP Simplified set has consistently outperformed conventional packings - including die-formed flat graphite tape rings.

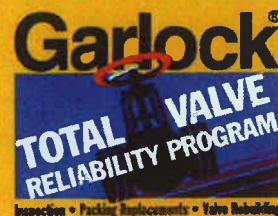
- A Midwestern chemical plant replaced flat graphite tape ring sets with 9000 EVSP Simplified in heat transfer fluid. EVSP has sealed for 24 months with no leakage - eliminating the previous product coking at the gland. 9000 EVSP Simplified is specified on all valve rebuilds.
- A Southeast refinery was experiencing visible leakage in valves sealing naphtha with flat graphite tape rings. 9000 EVSP has sealed for over one year. 2nd readings remain at less than 100 ppm.
- An Eastern refinery installed 9000 EVSP in "trouble" benzene valves reducing emissions from as high as 25,000 ppm to an average of 100 ppm. Based on this success the entire refinery has 9000 EVSP throughout.

NUCLEAR SERVICE

The 9000 EVSP Simplified set can be supplied manufactured from high purity GRAPH-LOCK and G-700 braided end rings certifiable to MIL-P-24503B(SH) (GRAPH-LOCK) and MIL-P-24583B(SH) (G-700); and General Electric D50YP12, Rev. 2, Dated 10/92. Please supply detailed specifications for review.

For Total Valve Reliability

On schedule and guaranteed. Check our exclusive Garlock Total Valve Reliability Program. A sensible, efficient 3-way program of valve inspections, replacements and rebuilding.



Garlock meets the highest quality standards.
ISO 9002-94 QMI registered.

ENGINEERING DATA

Temperature: to +1200°F (+650°C steam)
pH Range: 0-14 (except strong oxidizers)
Pressure: to 10,000 psi plus (690 bar)

Certifiable to 50 ppm leachable chlorides on request.

AUTHORIZED REPRESENTATIVE

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GARLOCK is a registered trademark for packings, seals, gaskets, and other products of Garlock.

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