



KLINGER[®]
Mzansi



KLINGER

Gland Packing

» General Purpose & Water
» Slurry Applications

» Chemical Applications
» High Temp & Static Seals



GLOBAL LEADER

LOCAL PARTNER

KLINGER Mechanical Gland Packing - Select the correct product for the job.

LOCALLY MANUFACTURED KLINGER has a comprehensive range of **LOCALLY MANUFACTURED** compression packing, which are suitable for centrifugal or reciprocating pumps, agitators, screw conveyors and valves. KLINGER's range includes patented specialised mechanical gland packing and concepts which assist our customers to meet, and in most cases exceed the stringent fugitive emission targets set by various environmental bodies and customers themselves.

K466M - A universal packing for centrifugal pumps, boiler feed water pumps and valves in high pressure and temperature applications. Wear resistant and gentle on pump shafts, sleeves and valve stems. The excellent heat transfer capabilities of carbon along with the lubricant used to manufacture KLINGER Style K466M makes this packing ideal for power generation and petrochemical process plants.

Product Code	Temperature	Pressure	Velocity	pH	Services
K466M	650°C - Steam Oxidising - 430°C	34 Bar (Rotating) 115 Bar (Static)	20 M/S	0 - 14	Rotating, Reciprocating, Static & Valves

K3222 - A cross braided expanded graphite packing. KLINGER Style K3222 forms a solid graphite bush within the stuffing box creating a high pressure low emission seal. Ideal for use in the power generation, petrochemical and cryogenic applications. K3222 is available as K3222W and K3222K with wire reinforcing for use in high pressure valves.

Product Code	Temperature	Pressure	Velocity	pH	Services
K3222	450°C	180 Bar	8 M/S	0 - 14	Rotating & Valves
K3222W	450°C	190 Bar	0 M/S	0 - 14	Valves
K3222K	450°C	200 Bar	0 M/S	0 - 14	Valves

STYLE 333 - Made of ultra-high purity graphite fibre with helically braided inconel wire inside. The core is extra dense to provide dimensional stability throughout the working temperature/pressure range of Style 333. Braid blockage is provided by a unique dispersion containing ultra fine graphite particles locked in place by the SealRyt® patented process.

Product Code	Temperature	Pressure	Velocity	pH	Services
Style 333	454°C	360 Bar	N/A	0 - 14	Soot Blowers & Valves

STYLE 396 - A dense version of braided flexible graphite with effective placement of high purity carbon filament yarns to resist extrusion and maintain density in the stuffing box at high temperature. Style 396 may be used on valves with anti-extrusion bullrings (see Style 333) for excessive clearances and ultra high pressures. Style 396 is most effective at controlling fugitive emissions.

Product Code	Temperature	Pressure	Velocity	pH	Services
Style 396	454°C	172 Bar	N/A	0 - 14	Rotating, Soot Blowers & Valves

STYLE 396C - The most effectively designed wire reinforced graphite product on the market today for the sealing of fugitive fuel emissions. Style 396C meets or exceeds all requirements of A.P.I. 589 and 607 tests as well as the A.P.I. fire test for soft-seated quarter-turn valves.

Product Code	Temperature	Pressure	Velocity	pH	Services
Style 396C	454°C	310 Bar	13 M/S	0 - 14	Rotating, Reciprocating, Soot Blowers & Valves

K35 - Preformed graphite packing ring sets are produced with spirally wound 1.0g/cm³ expanded graphite tape and compressed to produce a graphite ring with a density that can range from 1.2 to 2.0 g/cm³ depending on service duty.

Product Code	Temperature	Pressure	Velocity	pH	Services
K35	430°C	300 Bar	5 M/S	0 - 14	Static & Valves

K2168 - A low cost general purpose gland packing manufactured from high quality natural yarns and lubricated with graphite wax. KLINGER Style K2168 is suitable for less demanding applications.

Product Code	Temperature	Pressure	Velocity	pH	Services
K2168	55°C	15 Bar	5 M/S	6 - 9	Rotating & Static

K2170 - A low cost general purpose gland packing manufactured from high quality natural yarns and lubricated with our famous proprietary Doulon®. KLINGER Style K2170 is suitable for less demanding applications.

Product Code	Temperature	Pressure	Velocity	pH	Services
K2170	55°C	15 Bar	6 M/S	6 - 9	Rotating, Reciprocating & Static

K4307 - Superior flax yarns that are cross braided and impregnated with PTFE and additional sea water resistant lubricants. As flax yarns are particularly strong and have higher rot resistance, this packing is suitable for centrifugal pumps, valves and shaft seals that are in contact with fresh water or sea water. KLINGER Style K4307 is an ideal packing for use in the agricultural and marine industries.

Product Code	Temperature	Pressure	Velocity	pH	Services
K4307	90°C	15 Bar	10 M/S	4 - 9	Rotating, Reciprocating, Static & Valves

THE INFORMATION WE REQUIRE

S	T	A	M	P	P
SIZE	TEMPERATURE	APPLICATION	MEDIA	PRESSURE	PH

K10 - A high quality economy grade packing manufactured from a combination of glass and acrylic yarns, cross braided and impregnated with PTFE lubricant. KLINGER Style K10 is an excellent general purpose packing. Ideally suitable for high speed pumping, valve stem and reciprocating applications.

Product Code	Temperature	Pressure	Velocity	pH	Services
K10	175°C	15 Bar	10 M/S	4 - 10	Rotating, Reciprocating, Static & Valves

K20 - KLINGER Style K20 has the ability to handle a wide range of chemicals as well as light slurry applications. Style K20 manufactured from glass and acrylic yarns and lubricated with our proprietary Doulon® lubricant, providing excellent heat transfer and lubricating properties for extended life and low shaft wear.

Product Code	Temperature	Pressure	Velocity	pH	Services
K20	175°C	15 Bar	12 M/S	4 - 10	Rotating, Reciprocating, Static & Valves

K4313 - A unique cross braided packing that is made from a combination of PTFE, with a graphite inclusion and aramid multi-filament on the corners. The strong aramid corner posts resist extrusion from the stuffing box while ensuring that unwanted solids are excluded.

Product Code	Temperature	Pressure	Velocity	pH	Services
K4313	260°C	40 Bar	20 M/S	2 - 12	Rotating, Reciprocating & Static

K25 - Aramid fibre packing impregnated with a PTFE dispersion. It is recommended for use in media containing suspended solid abrasive particles. For use in pumps, mixers, valves and knife gates. Ideal for heavy duty slurry applications in the pulp & paper, agriculture and mining industries.

Product Code	Temperature	Pressure	Velocity	pH	Services
K25	260°C	30 Bar	15 M/S	2 - 12	Rotating, Reciprocating, Static & Valves

K7302DL - Various high strength modified aramid yarns result in a packing with high lubrication retention ability resulting in low shaft or sleeve wear. Ideal for use in high pressure and high speed pumping applications. KLINGER Style K7302DL is the market leading slurry packing. Also available with a PTFE lubricant. **Exclusive to KLINGER**

Product Code	Temperature	Pressure	Velocity	pH	Services
K7302DL	260°C	36 Bar	16 M/S	2 - 12	Rotating, Reciprocating & Valves
K7302	260°C	36 Bar	16 M/S	2 - 12	Rotating, Reciprocating & Valves

K7301 - A dry general purpose packing for doors, cover seals on boilers, ovens, furnaces, rotary kiln seals, brickwork bumper seals and electrode seals in arc furnaces. Available in round, square or rectangular cross section, from 3mm up to 200mm.

Product Code	Temperature	Pressure	Velocity	pH	Services
K7301	700°C	5 Bar	0 M/S	3 - 9	Static Sealing Only

K7301/C - A dry general purpose packing manufactured from ceramic yarns that resists temperatures up to 900°C in static applications. The thermal insulation properties of ceramic fibre products makes this product a leader in sealing industrial furnaces, boiler doors and rotary kilns. Available in sizes ranging from 3mm to 200mm (square, twisted & round).

Product Code	Temperature	Pressure	Velocity	pH	Services
K7301C	900°C	5 Bar	0 M/S	3 - 9	Static Sealing Only

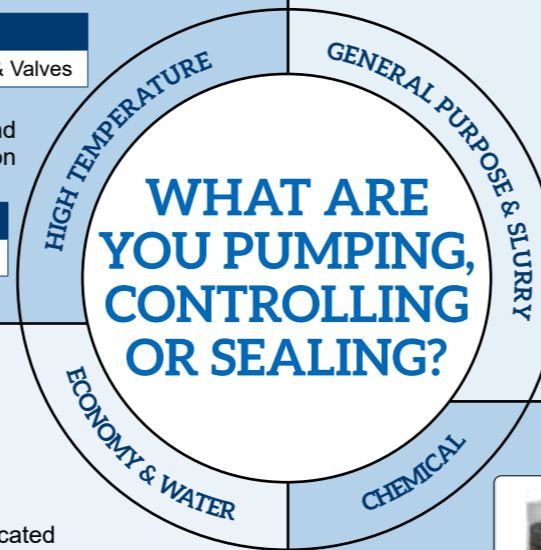
K49 - A high quality, cross braided PTFE yarn with graphite inclusion that gives the packing several distinct advantages; high speed, low shaft and sleeve wear, no graphite migration and no contamination of the process media.

Product Code	Temperature	Pressure	Velocity	pH	Services
K49	260°C	30 Bar	22 M/S	0 - 14	Rotating, Reciprocating & Valves

K54S/F/H - An excellent PTFE packing for plant wide use especially when a clean, non-contaminating packing is required with a very high degree of chemical resistance. Can be used in virtually all media including strong acids and alkalis. Suitable for use in oxygen service up to 20 Bar pressure in valves. The ideal packing for use in tanker lid seals.

Product Code	Temperature	Pressure	Velocity	pH	Services
K54S/F/H	260°C	20 Bar	20 M/S	0 - 14	Rotating, Reciprocating, Static & Valves

S- Food Processing | *F*- Oxygen Service | *H*- Added Lubrication





KLINGER Gland Packing

For technical support contact us on technical@klinger.co.za



KLINGER®

Mzansi

Tel: +27 (0) 11 842 8300

Email: sales@klinger.co.za

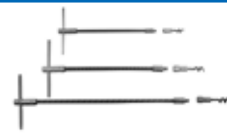
GLAND PACKING TOOLS AND LUBRICANTS

Gland Packing Cutters



The gland packing cutter is ideal for accurate cutting of packing rings to fit pumps or valves. Packing sizes of up to 25mm can be cut to length using a calibrated scale for shafts of up to 150mm in diameter.

Gland Packing Extractors



These extractors facilitate the removal of old, used gland packing from stuffing boxes. They are available in three different sizes and can be purchased individually or as a set. Replacement corkscrew tips are also available.

Penetrating Oil



KLINGER Penetrating Oil has been specifically formulated to loosen rusted and seized nuts, bolts and fittings. Instantly and effectively penetrating rust, dirt and scale leaving them with a clean film and reducing assembly time.

Chain and Linkage



KLINGER Chain and Linkage Spray is a low friction soluble molybdenum based lubricant. The formulation resists fling-off and is highly water resistant. The spray penetrates deep into linkages and remains adhered to surfaces in inaccessible places to give long-lasting protection under demanding conditions. The 360° valve technology allows spraying at all angles, including upside down.

Nickel Anti-Seize



KLINGER Nickel Anti-Seize compound is designed to prevent seizing, galling and prevent corrosion in nuts and bolts in temperatures up to 1300°C. The unique formulation allows for firmer and more accurate tightening and torquing of threaded connections and mating surfaces, while enabling easier loosening.

FORMULAE AND CALCULATIONS

Cut Ring Length

$$\frac{(\text{ID stuffing box} + \text{OD shaft}) \times \pi}{2} + \text{⊙} \%$$

For the percentage factor contact our technical department on technical@klinger.co.za

Packing Size

$$\frac{(\text{ID S/B} - \text{OD shaft})}{2}$$

Differential Pressure

$$\text{Discharge Press} - \text{Suction Press}$$

Shaft Speed (m/s)

$$\frac{(\text{shaft } \varnothing \text{ (in meters)} \times 3.14 \times \text{rpm})}{60}$$

S/B Pressure

$$\text{Suction Pressure} + 25\% \text{ Diff Pressure}$$

Balance Holes / Closed Impeller

S/B Pressure

$$\text{Suction Pressure} + 10\% \text{ Diff Pressure}$$

Back Vanes / Open Impeller

TABLE OF pH VALUES

14 Maximum Caustic	11	08	05 Mild Acid	02 Severe Acid
13	10	07 Neutral (Distilled Water)	04	01
12 Severe Caustic	09 Mild Caustic	06	03	00 Maximum Acid



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