Kevlar / Aramid Packing — — Technical Data Sheet / Datasheet / TDS

1) Para-aramid (Kevlar®) — PTFE-impregnated braided packing

(continuous-filament Kevlar yarn braided; PTFE / lubricant impregnation is the common commercial finish)

A — Properties / Attributes (typical)

Property	Typical / notes
Construction	Braided from DuPont® Kevlar® (para-aramid) continuous filament yarn; impregnated with PTFE emulsion and lubricants (many vendor style names).
Appearance / form	Round or square braided cord (also ribbon/flat braid available); yellow-gold natural yarn usually darkened by impregnant.
Temperature (service)	Typical practical service: -200 ° C → ≈ +250…+285 ° C depending on media and impregnation; many vendor datasheets quote up to ~280 - 285 ° C (550 ° F) for short periods in steam/water. Use supplier TDS for exact limits.
Chemical compatibility	Very broad: Kevlar has good resistance to most acids/alkalis and organics; PTFE impregnant gives extra chemical inertness. See DuPont chemical tables for specific strength retention vs strong oxidizers and high T.
Mechanical / wear	Very high tensile strength and abrasion resistance compared with classic fibre packings; low cold-flow; can be aggressive to soft shafts — minimum recommended shaft hardness often ≥ 60 HRC for heavy duty use.
Friction & leakage	Low friction (PTFE), good run-in behaviour; low leakage when correctly installed and compressed.
Typical densities / bulk	Packing density varies by braid & impregnation; vendors publish feet-per-lb / metres-per-kg data for estimating length per spool.
Strengths	Excellent abrasion resistance, high tensile strength, wide chemical compatibility, low cold flow.
Limitations / cautions	Can abrade shaft surfaces if shaft is soft or rough — require shaft hardness and good surface finish; not the best choice for heavy abrasive slurry unless corner yarns / protective jackets are used. Verify compatibility with oxidizing chemistries at high temperature.

2) Aramid (Kevlar) — graphite / carbon-enhanced and hybrid constructions

(aramid braided core with graphite/carbon fillers or combined with PTFE faces / aramid corners — designed for abrasive, higher-temperature or lower-leak applications)

A — Properties / Attributes (typical)

Property	Typical / notes
Construction	Variants include aramid yarn braided with graphite/carbon filler impregnation, aramid braided with graphite/PTFE face yarns, or aramid core + graphite/metallic end rings. These hybrids combine abrasion resistance with improved sealing / lower permeability.
Temperature & chemical	Similar chemical breadth as aramid; graphite/carbon fillers improve thermal stability and conductivity — practical service temperatures often up to ~280 ° C (grade dependent).
Abrasion & slurry	Graphite/carbon + aramid hybrids are widely used in abrasive slurry services because aramid provides toughness while graphite lowers friction and improves sealing.
Leakage & sealing	Graphite reduces permeability; PTFE faces give chemical barrier — hybrids tailored to trade-off abrasion vs leakage.
Shaft wear	Still can be abrasive to soft shafts — protective / hard shafts recommended; some designs use protective corner yarns to reduce shaft contact wear.

3) Special constructions & installation notes (engineering rules of thumb)

A — Typical mechanical / installation cautions

Shaft hardness & finish: many vendors explicitly recommend shaft hardness ≥ 60 HRC (or otherwise a suitably hardened/ground sleeve) for Kevlar packings in heavy duty or abrasive service to avoid shaft scoring and premature shaft wear. Confirm vendor requirement for your grade.

Gland compression: Kevlar packings usually require moderate gland compression on installation — excessive compression can accelerate wear / extrusion; follow vendor torque / compression instructions and do a proper run-in / retorque after initial run-in.

Use in reciprocating vs rotary: choose braid construction accordingly — square braided and fillers for reciprocating pumps; low-friction PTFE-impregnated round braid for high-speed rotating shafts.