PTFE Packing — — Technical Data Sheet / Datasheet / TDS

1) Expanded PTFE braid (ePTFE braided packing)

A. Properties / Attributes (typical)

Attribute	Typical / notes
Composition	Expanded (ePTFE) monofilament or multifilament yarns braided into round, square or rectangular cross-section packings.
Temperature range	≈ -200 ° C to +260 ° C (continuous PTFE limit; practical gland packing limits depend on application & lubricant).
Chemical resistance	Outstanding — virtually all inorganic/organic chemicals; inert to acids, bases and solvents.
Friction / wear	Low friction (self-lubricating); good for dry or lubricated shafts; low shaft wear.
Compressibility & recovery	Excellent initial conformability and recovery; seals quickly at low gland loads.
Leakage / purity	Low extractables; suitable for food/pharma when certified grades used.
Advantages	Very wide chemical compatibility, low friction, good for high linear speeds and vacuum/cryogenic service.
Limitations	Less effective for heavy abrasive services unless combined with abrasion-resistant yarns or corner reinforcements.

2) Solid-PTFE (extruded / braided full-PTFE) packing

A. Properties / Attributes (typical)

Attribute	Typical / notes
Composition	Dense extruded PTFE cord or braided from virgin PTFE filaments (not expanded).
Temperature & chemical	-200 ° C to +260 ° C; excellent chemical inertness.
Mechanical	Higher density → better mechanical resistance than ePTFE foils; still exhibits cold-flow (creep) under static high load.
Friction	Very low friction — good for sensitive shafts but requires proper gland lubrication to prevent extrusion.
Uses	Clean chemical service, sanitary systems, applications requiring pure PTFE contact surface.
Limitations	Higher cold-flow vs filled PTFE; less abrasion resistance than composite packings.

3) PTFE filled / modified packings (carbon-filled, graphite-filled, glass-filled, bronze-filled)

A. Properties / Attributes (typical)

Attribute	Typical / notes
Composition	PTFE matrix blended with fillers (carbon, graphite, glass, bronze, MoS_2).
Purpose of fillers	Reduce cold-flow (creep), improve mechanical strength, increase thermal conductivity or lower friction for dynamic seals.
Chemical resistance	Still excellent for many chemistries; metallic fillers (bronze) reduce pure chemical inertness — check compatibility.

Attribute	Typical / notes
Wear & friction	Improved wear resistance and lower extrusion tendency than virgin PTFE; filler selection balances friction vs abrasion.
Typical limits	Temperature range similar to PTFE base (up to ~260 ° C); some filled grades have reduced max T depending on filler.

4) PTFE composite / hybrid packings (PTFE faces + aramid / high-strength corner yarns; PTFE core + aramid corners)

A. Properties / Attributes (typical)

Attribute	Typical / notes
Construction	Hybrid braid combining PTFE yarn faces for chemical resistance with abrasion-resistant aramid/aramid-corner yarns or an extruded PTFE core for mechanical strength.
Advantages	Good abrasion resistance in corners, lower shaft wear and improved packing life while keeping PTFE chemical compatibility at the faces.
Temperature & chemical	PTFE face retains chemical resistance; aramid corners limit max T (check grade).
Common trade names	Many manufacturers market PTFE/aramid or PTFE/graphite combinations (Lionpak series and similar).

5) PTFE with metal/graphite jackets or Inconel/SS jackets (metal-reinforced jacketed PTFE)

A. Properties / Attributes (typical)

Attribute	Typical / notes
Construction	PTFE core or PTFE yarns braided with a metal filament jacket (Inconel, SS) or metal-mesh overlay for mechanical protection and extrusion resistance.
Advantages	Much higher mechanical strength, suitable for higher gland pressures and heavier shaft loads; jacket protects core from

Attribute	Typical / notes
	abrasion and extrusion.
Limitations	Jacket metal may react with some process fluids; more expensive and used where required for durability.

6) PTFE packing tapes, ribbon and gland tapes (flat PTFE gaskets / tapes used as packings)

A. Properties / Attributes

Attribute	Typical / notes
Form	Thin PTFE tape (skived or expanded), ribbon braid or laminated flat cord for manual stuffing into the gland.
Use	Quick onsite packing repairs, low-pressure gland sealing, wrapping around shaft or layering in the stuffing box.
Sizes	widths 6 mm, 12 mm, 25 mm; thicknesses 0.3–1.0 mm typical; also skived PTFE sheets.