

Gland Packing Ring — Size Chart / Common Sizes / Specifications

A — Carbon / Carbon-fiber & Graphite packing rings (common cross sections)

Cross-section (inch)	Metric approx (mm)	Typical shaft / stem OD range (approx)	Typical common applications / scenarios
1/8" sq	3 mm	shafts/stems up to ~15 mm	Small valve stems, small centrifugal pumps, general service where low friction needed.
3/16" sq	4.8 mm	up to ~25 mm	Small/medium pumps, valves in chemical plants.
1/4" sq	6.0 mm	shafts ~20 - 40 mm	Most common for small to medium pumps and valve glands; widely stocked.
5/16" sq	8.0 mm	shafts ~30 - 50 mm	Larger pumps, heavy duty valves; reciprocating pumps when higher packing width required.
3/8" sq	10 mm	shafts ~40 - 70 mm	Large centrifugal pumps, some slurry or steam service (graphite).
1/2" sq	12.7 mm	shafts ~60 - 100+ mm	Heavy duty pumps, big valves, high temp steam services — usually die-formed ring sets used.

Cross-section (inch)	Metric approx (mm)	Typical shaft / stem OD range (approx)	Typical common applications / scenarios
Rectangular (e.g., 12 × 6 mm)	12×6 mm etc.	used when stuffing box depth limited	Used in special stuffing boxes or valve glands (see manufacturer cross charts).

B — PTFE (and filled PTFE) packing rings

Cross-section (inch)	Metric (mm)	Typical shaft OD range	Typical applications / scenarios
1/8" (3 mm)	3 mm	small shafts	Chemical dosing pumps, valves handling corrosive acids at low flow.
1/4" (6 mm)	6 mm	most valve stems, small pumps	Common for chemical service valves, rotary shafts with PTFE advantages.
3/8" (10 mm)	10 mm	larger shafts	Pumps with corrosive fluids, die-formed ring sets for valves.
1/2" (12.7 mm)	12.7 mm	heavy duty chemical pumps	High chemical compatibility needed (strong acids/alkalis).

C — Aramid / Kevlar packing rings

Cross-section (inch)	Metric	Typical shaft OD	Typical applications
1/8" - 1/4"	3 - 6 mm	shafts up to ~40 mm	Reciprocating pumps, marine shafting, where abrasion resistance is needed.
3/8" - 1/2"	10 - 12.7 mm	larger shafts	Heavy duty reciprocating pumps, slurry pumps (with proper impregnation).

D — Braided natural/synthetic (ramie / acrylic / cotton) packing rings

Cross-section (inch)	Metric	Typical shaft OD	Typical applications
1/8" - 1/4"	3 - 6 mm	small shafts	Water pumps, general utility valves, low-temp services.
3/8" - 1/2"	10 - 12.7 mm	larger machinery	Low cost general plant services, HVAC pumps.

E — Metal-reinforced / foil & die-formed ring sets

Type	Typical cross sections / set types	Typical applications
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Graphite foil with Inconel / SS wire reinforcement	Thin foil rings, multi-ply; OD/cross sections vary per valve pump spec	High temperature steam, turbine glands, extreme pressure.
Die-formed metal rings (Inconel / SS)	Custom per stuffing box	Emergency high temp seals; special service where polymer packings fail.