

Spiral Wound Gaskets — Complete Properties

A — Properties Table (general spiral-wound characteristics)

Property	Typical / Notes
Construction	Spiral-wound: alternating turns of V-shaped metal strip and filler material; may include inner and outer rings.
Typical sealing mechanism	Metal spring force + filler conformity fill flange irregularities → combined elastic + compressible seal.
Common winding metals	SS 304, SS 316, Inconel (600/625), carbon steel, Monel — choose to match flange metallurgy and corrosion environment.
Common fillers	Flexible graphite (most common for high-T steam/refinery), PTFE (chemical service), ceramic or mineral fiber (very high-T), combinations/impregnated variants.
Temperature capability	Filler-dependent: graphite fillers service typically up to ~450° C (protected grades higher); PTFE up to ~260° C; ceramic fibre and special alloys higher — check grade & oxidation limits.
Pressure capability	Suitable across wide range (ASME flange classes 150→2500) when correctly selected (inner/outer rings and correct cross-section used).
Leakage performance	Very good when: correct filler, metal strip, inner/outer rings and compressive load are used; suitable for gas & liquids. Impregnated graphite reduces permeability.
Mechanical behavior	Good springback and resilience; inner ring helps protect bore and withstand higher bolt loads; outer ring controls extrusion.
Typical cross-section options	3 mm, 4.5 mm, 6 mm are common; custom cross sections exist for special flange gaps and classes.
Standards / design guidance	ASME B16.20 defines dimensions, tolerances and identification (NPS/Class) for spiral-wound gaskets, inner & outer rings. Follow ASME and supplier guidance for dimensions & tolerances.
Application sectors	Refining, petrochemical, power generation, oil & gas pipelines, chemical processing, high-temperature steam systems, heat exchangers.

Compact quick reference (for rapid spec)

Filler	Typical max service T (typical)	Typical cross-section(s)	Typical industries
Flexible graphite (impregnated)	~450° C (protected)	3 / 4.5 / 6 mm	Refinery, power, steam, petrochemical.
PTFE	~260° C	3 / 4.5 mm	Chemical processing (corrosive media), pharma.
Ceramic fiber	>450° C (grade dependent)	4.5 / 6 mm	High-T process, furnace exhausts.
Metal-clad graphite	higher (graphite protected)	4.5 / 6 mm	Steam & corrosive service requiring oxidation protection.
Spiral-wound (general)	depends on filler/metal	3 / 4.5 / 6 mm (others)	ASME flange classes 150 - 2500 — wide industry use.