

# Key product parameters

Parameter	Typical / published values & notes
Product concept / construction	Two independent seals in one cartridge (inboard & outboard), pre-assembled and factory set; available as tandem, back-to-back or API-style double cartridge arrangements.
Typical pressure capability (catalog examples)	Manufacturers' cartridge double seals are published from low pressures up to high-pressure engineered units. Example: Scenic APD989 (API-682 cartridge dual) published up to 558 psig ( $\approx 38$ bar). Many standard cartridges cite dynamic working ranges up to $\sim 20 - 25$ bar depending on series/materials.
Temperature range	Varies by face/elastomer selection. Example published ranges: $-40$ ° C $\cdots$ $+310$ ° C (Scenic APD989 high-temp dual) and many cartridges list $\approx -40$ ° C $\cdots$ $+200 - 205$ ° C for common elastomer/face combinations.
Peripheral speed / surface velocity	Typical catalogue guidance: up to $\approx 23 - 25$ m/s ( $\approx 4,700 - 5,000$ fpm) for high-performance cartridge duals; confirm with series TDS for shaft $\emptyset$ limits.
Face materials	Common pairings for double cartridges: Carbon (graphite), Silicon Carbide (SiC), Tungsten Carbide (TC) and advanced coated faces (DiamondFace etc.). Inboard & outboard face combinations are chosen by application.
Metallurgies & elastomers	Standard wetted metal: 316 / 316L SS; options: Alloy C-276, Alloy 20, Duplex, Titanium, Monel depending on corrosive duty. Elastomers: FKM (Viton), EPDM, FFKM.
Barrier / buffer fluid guidance	Double cartridges are designed to operate with a buffer or barrier fluid system; many manufacturers recommend barrier fluid pressure not normally more than 1 barg ( $\approx 15$ psig) above stuffing-box pressure for standard protection — and provide support systems for forced-circulation barrier cooling.
API compliance & piping plans	Cartridge double seals are commonly offered to meet API-682 arrangements and connect to common API Plans (Plan 52 / 53 / 53A / 54 etc.) — many cartridge units are API-qualified or designed to be used with API piping plans.
Installation / maintenance advantage	Cartridge combined inboard/outboard unit is factory preset and tested $\rightarrow$ reduces installation errors, simplifies replacement (shorter MTTR), improves traceability (serial numbered units). Many vendors highlight self-aligning faces and pre-set calibration.
Typical application limits / cautions	Exact allowable pressure, temperature and speed are series- and material-dependent — always verify the chosen series TDS and confirm gland bore & sleeve dimensions from the dimensional drawing before quoting.