

HELICOFLEX SEAL SELECTION GUIDE BY PERFORMANCE



Application Information	SEAL TYPE					
	HELICOFLEX®	DELTA®	O-FLEX™	C-FLEX™	E-FLEX™ U-FLEX™*	Machined Seal*
Ultra High Vacuum	●	▲▲	■	■	■	▲
Low Pressure	▲▲	●	▲	▲	▲	▲
High Pressure	▲▲	■	▲	▲▲	●	▲
Cryogenic Temperature	▲▲	▲	●	●	●	■
High Temperature	▲▲	▲	▲	▲	▲	■
Spring Back	●	●	●	▲	▲▲	■
Shaped Seals	▲	▲	▲	●	■	■
Axial Sealing	▲	■	●	▲	■	■
QDS Compatible	▲	▲	■	■	■	■
Seating Load	High	Moderate	High Moderate	Moderate Low	Low	High Moderate
Leak Rate Approximation	Helium	Ultra-Helium	Helium Bubble	Bubble Low Bubble	Low Bubble	Helium

*See Custom Seals Section

Application Legend	
Recommended - Excellent	▲▲
Recommended - Good	▲
Optional - Special Design	●
Not Recommended	■



Leak Legend	Approximate Leak Rates per meter of circumference	Actual leak rate in service will depend on the following:
Ultra-Helium	$\leq 1 \times 10^{-11}$ std.cc/sec He	Seal Load : Wall Thickness or Spring Load
Helium	$\leq 1 \times 10^{-9}$ std.cc/sec He	
Bubble	$\leq 1 \times 10^{-4}$ std.cc/sec Air	Surface Finish : Seal and Cavity
Low Bubble	≤ 25 cc/min @ 50 psig Nitrogen per inch of diameter	Surface Treatment : Coating/Plating/Jacket Material

● HELICOFLEX, O-FLEX, C-FLEX, OMICRON, QDS are registered brand names of Technetics Group.

HELICOFLEX SEAL SELECTION GUIDE BY MARKET / APPLICATION



SEMICONDUCTOR MATERIALS



Application	Section
Ampoules	DELTA®
Gas Canisters	DELTA®
Chemical Canisters	DELTA®

NATIONAL LABORATORIES



RF Waveguides	DELTA®
Particle Accelerators	DELTA®
Fusion Reactors	DELTA®
Klystron Tubes	DELTA®

NUCLEAR



Pressure Vessel	HELICOFLEX® O-FLEX™
Spent Fuel Casks	HELICOFLEX® O-FLEX™
Waste Heat	HELICOFLEX® O-FLEX™
Primary Loop	HELICOFLEX® O-FLEX™ QDS®
Control Valves	HELICOFLEX® O-FLEX™
CRD / BWR	O-FLEX™
Pressurizer	HELICOFLEX® O-FLEX™

POWERGEN: LAND BASED TURBINES



Fuel Nozzles	HELICOFLEX® C-FLEX™	E-FLEX™
Cooling Steam	HELICOFLEX® C-FLEX™	E-FLEX™
Casing	E-FLEX™	HELICOFLEX®
Fuel Delivery	MS Orings*	K-PORT SEAL
V-Band Coupling	U-FLEX™*	C-FLEX™ E-FLEX™ QDS®
Compressor Discharge	HELICOFLEX® C-FLEX™	E-FLEX™
Electronic Enclosures	DELTA®	HELICOFLEX® C-FLEX™
Gear Box	HELICOFLEX® C-FLEX™	
Rocket Engine & Turbo Pumps	E-FLEX™	HELICOFLEX® C-FLEX™
MS Standards	MS Orings	C-FLEX™
Fuel Nozzle Locking Rings & Plates	Contact Applications Engineering	

HIGH PERFORMANCE AUTOMOTIVE



Head Gasket Replacement	HELICOFLEX® O-FLEX™
Cooper Ring Replacement	HELICOFLEX® O-FLEX™
Head to Header Interface	U-FLEX™ C-FLEX™ HELICOFLEX® O-FLEX™
Exhaust Systems	U-FLEX™ C-FLEX™ HELICOFLEX®
Turbochargers Internal and External Interfaces	U-FLEX™* C-FLEX™ HELICOFLEX® O-FLEX™
Stack-up Tubular Springs	O-FLEX™ C-FLEX™ U-FLEX™* E-FLEX™
High Pressure Fuel Injection	HELICOFLEX® O-FLEX™ C-FLEX™
Fuel Cell High Pressure Feed	HELICOFLEX® O-FLEX™ C-FLEX™
Fuel Cell Exhaust Path	C-FLEX™ U-FLEX™*
Catalytic Converter Connections	U-FLEX™* C-FLEX™

PLASTIC INJECTION MOLDING



Hot Runner Components	HELICOFLEX® O-FLEX™ C-FLEX™
Manifold Plates	HELICOFLEX® O-FLEX™ C-FLEX™
Extruder Plates	HELICOFLEX® O-FLEX™ C-FLEX™
Filter Packs	HELICOFLEX® O-FLEX™ C-FLEX™
Spinnerettes	HELICOFLEX® O-FLEX™ C-FLEX™
Screen Changers	HELICOFLEX® O-FLEX™ C-FLEX™
Instrumentation Ports	HELICOFLEX® O-FLEX™ C-FLEX™

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AEGIS

SEMICONDUCTOR MATERIALS



Application	Section
Ampoules	DELTA®
Gas Canisters	DELTA®
Chemical Canisters	DELTA®

NATIONAL LABORATORIES



RF Waveguides	DELTA®
Particle Accelerators	DELTA®
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Klystron Tubes	DELTA®

NUCLEAR



Pressure Vessel	HELICOFLEX®	O-FLEX™	
Spent Fuel Casks	HELICOFLEX®	O-FLEX™	
Waste Heat	HELICOFLEX®	O-FLEX™	
Primary Loop	HELICOFLEX®	O-FLEX™	QDS®
Control Valves	HELICOFLEX®	O-FLEX™	
CRD / BWR	O-FLEX™		
Pressurizer	HELICOFLEX®	O-FLEX™	

POWER GEN: LAND BASED TURBINES



Fuel Nozzles	HELICOFLEX®	C-FLEX™	E-FLEX™	
Cooling Steam	HELICOFLEX®	C-FLEX™	E-FLEX™	
Casing	E-FLEX™	HELICOFLEX®		
Fuel Delivery	MS Orings*	K-PORT SEAL		
V-Band Coupling	U-FLEX™*	C-FLEX™	E-FLEX™	QDS®
Compressor Discharge	HELICOFLEX®	C-FLEX™	E-FLEX™	
Electronic Enclosures	DELTA®	HELICOFLEX®	C-FLEX™	
Gear Box	HELICOFLEX®	C-FLEX™		
Rocket Engine & Turbo Pumps	E-FLEX™	HELICOFLEX®	C-FLEX™	
MS Standards	MS Orings	C-FLEX™		
Fuel Nozzle Locking Rings & Plates	Contact Applications Engineering			

HIGH PERFORMANCE AUTOMOTIVE



Head Gasket Replacement	HELICOFLEX®	O-FLEX™		
Cooper Ring Replacement	HELICOFLEX®	O-FLEX™		
Head to Header Interface	U-FLEX™	C-FLEX™	HELICOFLEX®	O-FLEX™
Exhaust Systems	U-FLEX™	C-FLEX™	HELICOFLEX®	
Turbochargers Internal and External Interfaces	U-FLEX™*	C-FLEX™	HELICOFLEX®	O-FLEX™
Stack-up Tubular Springs	O-FLEX™	C-FLEX™	U-FLEX™*	E-FLEX™
High Pressure Fuel Injection	HELICOFLEX®	O-FLEX™	C-FLEX™	
Fuel Cell High Pressure Feed	HELICOFLEX®	O-FLEX™	C-FLEX™	
Fuel Cell Exhaust Path	C-FLEX™	U-FLEX™*		
Catalytic Converter Connections		U-FLEX™*	C-FLEX™	

PLASTIC INJECTION MOLDING



Hot Runner Components	HELICOFLEX®	O-FLEX™	C-FLEX™
Manifold Plates	HELICOFLEX®	O-FLEX™	C-FLEX™
Extruder Plates	HELICOFLEX®	O-FLEX™	C-FLEX™
Filter Packs	HELICOFLEX®	O-FLEX™	C-FLEX™
Spinnerettes	HELICOFLEX®	O-FLEX™	C-FLEX™
Screen Changers	HELICOFLEX®	O-FLEX™	C-FLEX™
Instrumentation Ports	HELICOFLEX®	O-FLEX™	C-FLEX™

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AEGIS

AEROSPACE



Application	Section
Fuel Nozzles	E-FLEX™ C-FLEX™ HELICOFLEX®
Bleed Air	E-FLEX™ C-FLEX™ O-FLEX™
Casing/Cowling	E-FLEX™
Fuel Delivery	MS O-Rings K-PORT SEAL
V-Band Coupling	E-FLEX™ C-FLEX™ HELICOFLEX® QDS®
Compressor Discharge	E-FLEX™ HELICOFLEX® C-FLEX™
Electronic Enclosures	DELTA® HELICOFLEX® C-FLEX™
Gear Box	HELICOFLEX® C-FLEX™
Rocket Engine & Turbo Pumps	E-FLEX™ HELICOFLEX® C-FLEX™
MS Standards	MS Orings C-FLEX™
MS 33649/AS 5202/ AS 4395 Fluid Ports	K-PORT SEAL C-FLEX™

DEFENSE



Weapons	HELICOFLEX®	C-FLEX™	O-FLEX™
Missiles	DELTA®	HELICOFLEX®	C-FLEX™
Electronic Enclosures	DELTA®	HELICOFLEX®	C-FLEX™
MS 33649/AS 5202/ AS 4395 Fluid Ports	K-PORT SEAL	C-FLEX™	
Military Standards	MS O-Rings	C-FLEX™	
Exhaust Systems	HELICOFLEX®	C-FLEX™	O-FLEX™
Fuel Delivery	HELICOFLEX®	C-FLEX™	DELTA®
Satellite Systems	DELTA®	HELICOFLEX®	C-FLEX™
Laser & RF Guidance Systems	DELTA®	HELICOFLEX®	

OIL & GAS

DOWNHOLE EQUIPMENT & UPSTREAM PRODUCTION



Drill Heads	HELICOFLEX®	O-FLEX™	
Valves	HELICOFLEX®	C-FLEX™	O-FLEX™
Steam Chucks	HELICOFLEX®		
Piping & Flanges	HELICOFLEX®	QDS®	
Electronic Enclosures & Packagings	DELTA®	HELICOFLEX®	C-FLEX™
Flow Control	HELICOFLEX®	C-FLEX™	
Pressure Gauges	HELICOFLEX®	C-FLEX™	
Well Head Plug	HELICOFLEX®	C-FLEX™	

OIL & GAS

REFINING & DOWNSTREAM FACTORIES



FRONT END PROCESSING

Heat Exchangers	HELICOFLEX®	O-FLEX™	
Bonnet Seals	HELICOFLEX®	O-FLEX™	C-FLEX™
Valve Seats	HELICOFLEX®		
Stem Seals	HELICOFLEX®	C-FLEX™	
Piping & Flanges	HELICOFLEX®	QDS®	
Process Sampling	HELICOFLEX®	C-FLEX™	O-FLEX™
Specialty Compressors	HELICOFLEX®	C-FLEX™	O-FLEX™

SEMICONDUCTOR

FRONT END PROCESSING



End Point Windows	DELTA®	
Chamber Lids	DELTA®	
Exhaust Lines	QDS®	DELTA®
Injectors	DELTA®	Machined Seal*
Bulkhead Connections	DELTA®	

SEMICONDUCTOR

SUB SYSTEMS



Gas Delivery System	Machined Seal*
Mass Flow Controllers	Machined Seal* DELTA®
Valve Manifold Box (VMB)	Machined Seal*
Gas Isolation Box (GIB)	Machined Seal*
Turbo Pumps	DELTA®