Reliable Solutions for Critical Applications

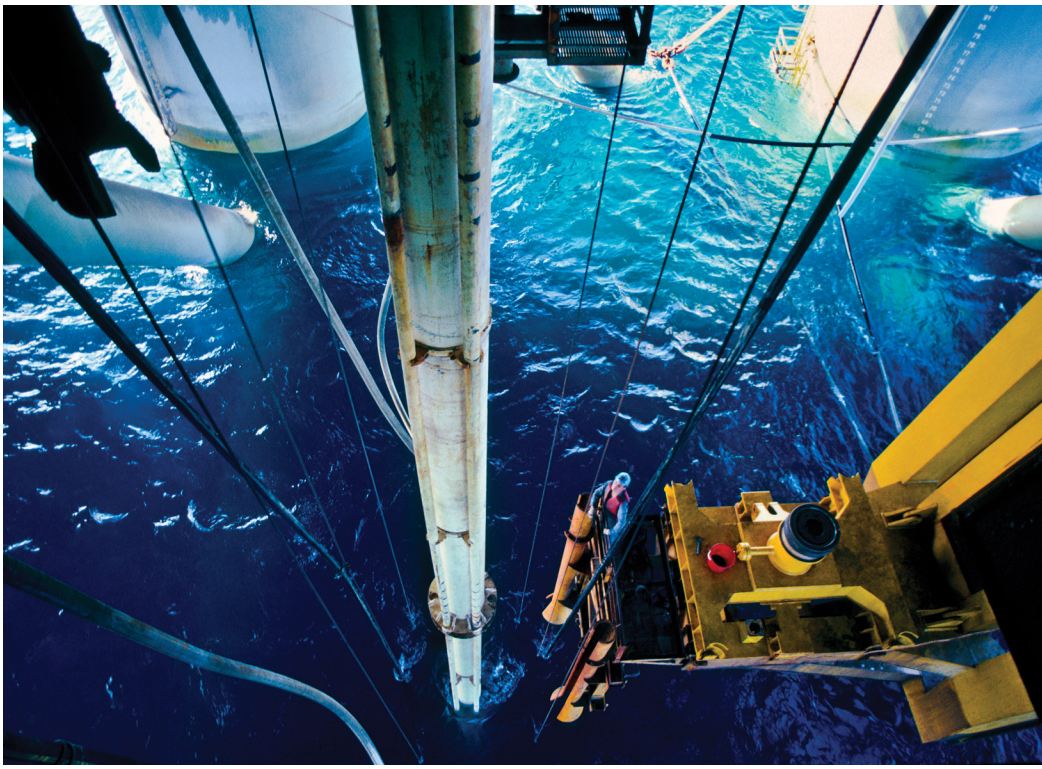
Complete Systems for Subsea and Land-based Drilling and Production

Proven Designs and Tested Materials

Parker is your valued partner and sealing technology expert – leading the way with innovative solutions for tomorrow's energy industry challenges.

We work with customers to design and manufacture world-class solutions utilizing industry tested materials. Our expertise spans a wide range of technologies enabling us to deliver reliable, high-performance components, including complete sealing systems, that withstand the temperatures, pressures and unique configuration challenges that confront design engineers.

Call Parker's experienced engineering team to learn more.



Contact Information:

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Molding & Material Capabilities:

- Thermoplastic molding to 52" diameter; cast molding to 144" diameter
- Elastomer molding to 80" diameter
- Seal machining to 72" diameter
- Bonded and insert molding
- API 6A, API 16C, ISO 23936-2, and NORSOK M-710 certified materials
- Rapid Gas Decompression (RGD) resistant materials available
- Sealing materials compatible with traditional and extreme oil field environments

Parker

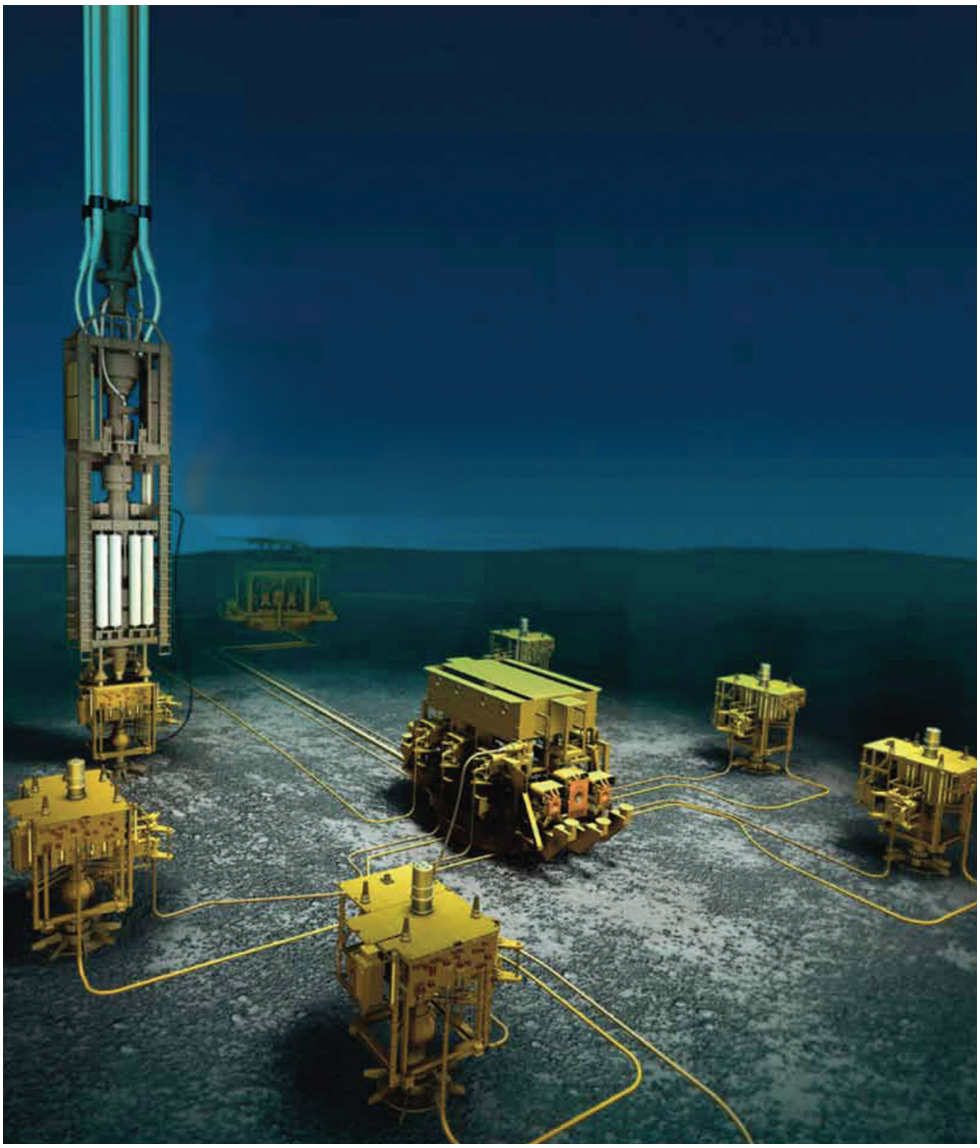
ENGINEERING YOUR SUCCESS.

Innovative, Advanced Technology

Proven Designs For Subsea and Land-based Applications

Parker delivers confidence with tested and proven designs for Oil & Gas sealing applications.

Our experienced engineering team understands the critical equipment needed to explore, drill and produce today's wells. Rely on our expertise in polymer science and sealing technology to help you design and build robust, reliable systems.



Drilling

Drilling Service Expendables
Sealing Elements for:
- Drills
- Blow Out Preventers
- Drilling Mud Systems
- LWD and MWD Test Equipment
- Casing and Pipe Connections
- Control Valves
- Compressors and Pumps
- Managed Pressure Drilling

Subsea Riser Management & Connector Systems

Shims, Fins
Protectors: Box & Pin, Flange
Riser Clamps, MUX Clamps
Viv Strakes
Gimbal Bearings and Assemblies
Flexible Joint Assemblies
Diverter Joint Assemblies
Tether Bearings
Sealing Elements for:
- Riser Connector Seals
- Annular Seals
- Flowline Seals
- Running Tool Seals

Completion

Packer Elements
Cementing Equipment, Expendables
Sealing Elements for:
- Well Controls and Christmas Trees
- Well Head Assemblies
- Tubing Heads
- Tubing Hangers

Production

Packer Elements
Well Servicing Expendables
Sealing Elements for:
- Christmas Trees
- Injection Systems
- Gas Lift Valves
- Well Service Tools
- Well Service Test Equipment
- Subsea Connectors
- Compressors/Pumps
- Production BOPs
- Artificial Lift Systems

Distribution

Sealing Elements for:
- Marine/Offshore Loading Swivels and Turrets
- Railcar Loading Systems
- Pipeline Valves, Actuators
- Pumps/Compressors
- Tank Systems
- Tanker (Ship) Loading Systems

Pipeline Service Equipment
- Pigs and Spheres

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Industry Tested Sealing Materials

	Material Type	Temp	Min	Max
STANDARD PERFORMANCE	**Nitriles (Buna-N, NBR)**		-35°F	+275°F
	N4400A75, N4180A80, N9643A90 / N9589A80. Excellent compression set resistance, peroxide cure, API 11D1 for packer elements. Applications: Petroleum lubricants, sea water and diesel fuel.			
	Hydrogenated Nitriles (HNBR)		-40°F	+300°F
	N4031A85 (EPS) / KA183A85 (ORD), N4035A80, N4025A80, N4007A95, N4288A85, RH1170A90. NORSOK M-710 Certified for H_2S and sweet service. Excellent low temperature capability, extrusion resistant, abrasion resistant, compression set resistant, NACE TM0 192-2003 Standard. Applications: High abrasion, high temperature and low temperature resistance. Good in Flex Fuels MTBE.			
	Ethylene Propylene (EPDM, EPR)		-60°F	+500°F
	E0962A90. Developed for steam service. Geothermal, high temperature, high pressure steam (intermittent to 550°F), resistant to CO_2, H_2S, methanol, glycols and explosive decompression.			
	Nitroxile®		-20°F	+275°F
	N4263A90, N4257A80, N4274A85. Excellent abrasion resistance. Internally lubricated for lower friction, Extreme low friction, Applications: Petroleum lubricants, seawater and diesel fuel.			
	Fluorocarbon (FKM)		-15°F	+400°F
	V4205A75, V1238A95, V4208A90, RV1121A90, VG109A90, V4266A95. Various general-purpose fluorocarbons including NORSOK M-710 certified V1238A95. Excellent compression set resistance. Maximum extrusion resistance and explosive decompression resistant. Applications: Low temperature, high temperature, high pressure, petroleum oils & fuels, H_2S.			
HIGH PERFORMANCE	**Perfluorinated Elastomers (FFKM)**		-15°F	+550°F
	FF200A75, FF580A75, V8545A75, V8588A90 Parofluor™. High temp resistant perfluorinated elastomer. Good compression set resistance, extreme chemical resistance and low leachables. Extreme temperatures, chemical mixtures, high concentration H_2S, amines, steam, polar fluids, solvents.			
	Highly Fluorinated Elastomers		-15°F	+400°F
	V3819A75, V8534A90 (Hifluor™). Highly fluorinated material. Lower temperature range, cost-effective alternative to perfluorinated materials. Improved compression set and abrasion resistance. Extrusion resistant version available. Resistant to aggressive chemicals, ketones, amines, acids and bases, polar fluids.			
	AFLAS®[1] TFE		-15°F	+450°F
	V4461A90, V1041A85. Improved compression set resistance. Applications: Amines, H_2S, steam, high temperature. Certified to NORSOK M-710. Passes NACE TM0 192-2003 Standard.			
THERMOPLASTICS	**Thermoplastic Elastomer Materials**		-65°F	+300°F
	Resilon® P4350A90, P4300A90, P4301A90, P4304D60, P4312D60, P4700A90, Molythane® P4615A90. Parker branded improved blends and high performance polyurethanes with improved compression set and rebound properties, water- and extrusion-resistance capabilities. Water resistant Resilon P4301A90 to +225°. High temperature Resilon P4350A90 to +300°F.			
	Plastic Alloy Materials		-65°F	+275°F
	Polymyte® Z4651D60, MolyGard® W4650, Nylatron®[2] W4655. High tear strength, abrasion- and extrusion-resistant. Excellent resistance to petroleum fluids, many phosphate ester fluids, some chlorinated hydraulic fluids, up to 180°F in water, oxygen, common solvents, ketones, alkalis, dilute bases, mineral acids, weak acids.			
HPHT	**PEEK, UltraCOMP™ Engineered Thermoplastics**		-65°F	+500°F
	W4685, W4686, W4738, W4678, W4773. Parker brand of PEEK. Neat, non-filled and filled blends available (carbon, graphite, glass, PTFE).			
	PTFE		-450°F	+550°F
	0100, 0130, 0201, 0204, 0317, 0318, 0502, 0622, 0901. Virgin & variously filled PTFE (carbon, glass, moly, bronze) blends available depending upon application parameters for wear resistance, abrasion resistance and speed. UHMWPE (0901) for high wear resistance and H_2O based media.			
FILLED	**Specialty Fillers / Filled Materials**			
	Natural rubbers enhance elongation properties in oilfield rubber products. Neoprene and FKM fiber (non-fabric, fabric) filled elastomers.			

[1] AFLAS® is a registered trademark of Asahi Glass Co., Ltd.
[2] Nylatron® is a registered trademark of Quadrant EPP USA, Inc.

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Material Certifications

Parker compound formulations shown below have been tested to the following Oil & Gas industry standards:

- NORSOK M-710
- ISO 23936-2
- API 6A, Annex F, Immersion Testing
- API 16C, Annex B

Parker continues to expand its portfolio of materials specifically suited for Oil & Gas service. Certification and testing is ongoing .

KEY: ✓ = Tested * = Testing in Progress

MATERIAL TYPE	PARKER MATERIAL CODE	TEMPERATURE RANGE (°F)		ISO 23936-2		NORSOK M-710		API 6A	API 16C
		Min	Max	RGD	H_2S	RGD	H_2S		
FFKM	FF102-75	5	525				✓		
	FF200-75	5	608				✓		
	FF580-75	5	525	*	*			✓	
	FF202-90	5	608				✓		
	V8588-90	5	572	*	*		✓	✓	
FKM	V1289-75	-50	400				✓		
	VP104-85	10	400	✓	*		✓		
	VG109-90	-49	400	✓	*	✓	✓	✓	✓
	V1238-95	-15	400	*	*	✓		✓	
	V4266A95	-5	400						✓
HNBR	KA183-85 / N4031A85	-50	300	✓	*		✓		
	KB163-90 / N4033A90	-30	300	✓	*	✓	✓	✓	
	N4007A95	-25	300	✓	*	✓	✓	✓	✓
TFE/P AFLAS®	V1041A85	15	450	✓	*	✓	✓		
	VP103-90	15	450	✓	*		✓		
TPU	P4615A90	-65	200		✓				
	P4300A90	-65	275		✓				
	P4301A90	-35	275†		✓				✓
	P4304D60	-65	275		✓				
	P4350A90	-65	300		*				*
TPCE	Z4651D60	-65	275		✓				✓

† +225°F in hot water

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