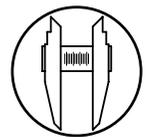


Rapid Seal

Inspection • Rapid Prototyping • Production



www.hitechseals.com



ISO 9001
REGISTERED QMS





Rapid Seal

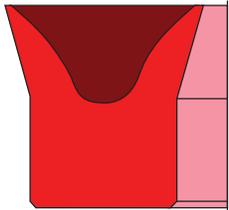
Rapid Seal is Hi-Tech Seals' rapid prototyping process. Hi-Tech Seals has machining facilities in Edmonton, AB and Winnipeg, MB. With the help of our experienced machinists, sales, drafting and engineering staff, we can quickly design and manufacture new prototype parts in a matter of hours without expensive tooling charges. Hi-Tech Seals can create parts based on product samples, customer-supplied drawings or by using the existing metal dimensions to design a new seal. The purchase of custom machined parts saves you time, money and the grief of hunting down hard to find replacement parts.

Quality Control

Hi-Tech Seals is registered under the ISO 9001 Quality Management System (QMS). It is our mission to ensure our products meet both our expectations and those of our customers. All machining orders go through several quality inspections involving multiple personnel.



Capabilities



We have several CNC lathes, multiple NC machines, milling and live tooling capabilities at our disposal. Hi-Tech Seals is capable of creating custom parts with profiles ranging from as small as 1/4" (6mm) inside diameter and up to as large as 29" (737mm) outside diameter within 48 hours. Consult our sales staff for manufacturing options exceeding the given ranges.

In addition to machining custom designed parts, Hi-Tech Seals has over 200 existing seal profiles (starting on page 5) pre-programmed into our seal design software. We can quickly select the desired profile, choose existing or new dimensions, select the desired material and manufacture a replacement part in a matter of minutes. Our ability to quickly manufacture replacement parts can save your company thousands of dollars from costly downtime.

Hi-Tech Seals works closely with customers to produce long or short production runs at an affordable cost without substituting the quality of the product.

Materials

Common elastomer billets:

- Nitrile (85 Duro.)
- Highly Saturated Nitrile (85 & 95 Duro.)
- Ethylene Propylene (85 Duro.)
- Fluorocarbon (85 Duro.)
- Aflas™ (85 Duro.)

We also sell engineered thermoplastics, such as:

- Nylon
- Urethane
- Acetal (POM)
- Virgin and filled PTFE
- Virgin and filled PEEK
- Hytrel®
- Polyethylene (UHMW)



Parts are machined in 85-95 durometer rubbers and hard plastics. Billets and plates of material are available for purchase. Additional materials, including Quadrant compounds, are available upon request.





Engineering and Drafting

Hi-Tech Seals' engineering and drafting departments use precision measuring equipment and a state-of-the-art video analysis device. Our video measuring system, the Micro-Vu, is capable of measuring parts to within an accuracy of six decimal places. We are able to provide this service for both inspection and for replication purposes. Hi-Tech Seals works closely with customers to create machining solutions to solve difficult and time sensitive sealing problems.



QUADRANT

Hi-Tech Seals works closely with industry leading plastic manufacturers, such as Quadrant, to bring you innovative and tailored solutions. Quadrant has been manufacturing plastic materials for over 60 years. Through Hi-Tech Seals, customers gain access to engineering support in:

- Material selection, design and fabrication
- Regulatory agency compliance
- Evaluation of performance needs

Quadrant Plastics offers unique compounds such as:

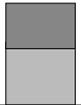
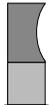
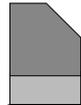
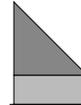
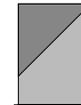
- Ketron® PEEK
- Ertalyte® PET-P
- Torlon® PAI
- Nylatron®
- Fluorosint®
- Techtron® PPS



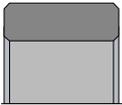
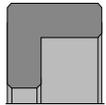
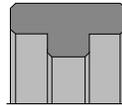
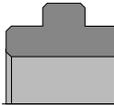
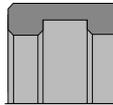
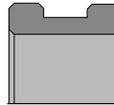
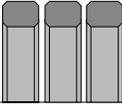
Profiles

Listed are the most common seal profiles of our +200 pre-programmed profiles. If your part matches one of the +200 profiles, Hi-Tech Seals can quickly apply your dimensions to the profile and produce a replica part. Custom design and assistance is also available. Please consult with a Hi-Tech Seals' sale representative for more information.

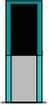
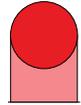
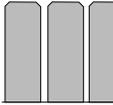
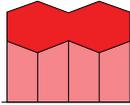
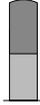
Back-Up Rings

							
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Guide Rings

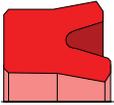
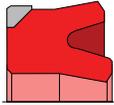
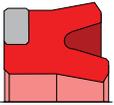
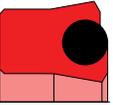
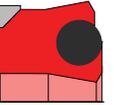
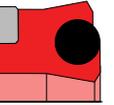
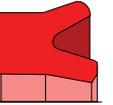
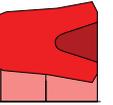
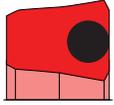
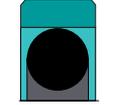
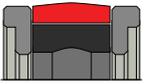
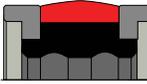
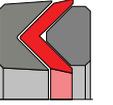
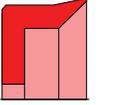
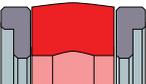
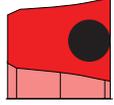
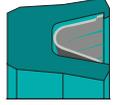
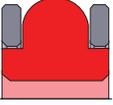
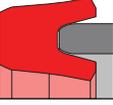
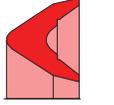
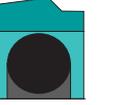
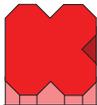
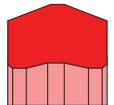
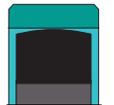
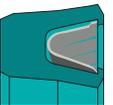
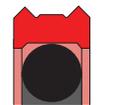
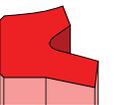
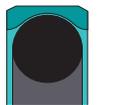
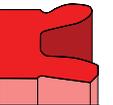
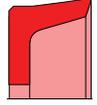
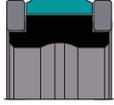
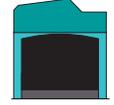
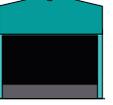
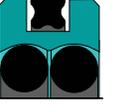
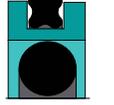
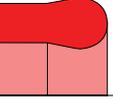
							
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DFB102							

Gaskets

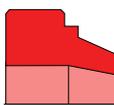
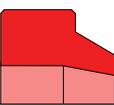
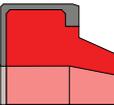
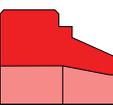
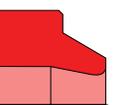
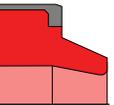
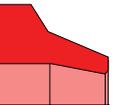
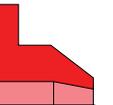
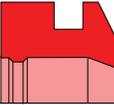
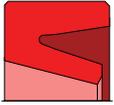
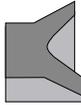
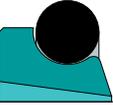
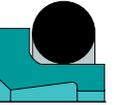
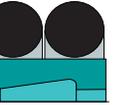
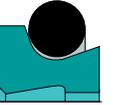
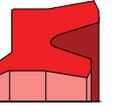
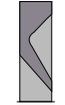
							
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DFL109	DFL110						



Piston Seals

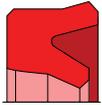
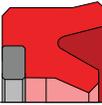
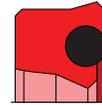
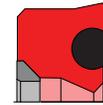
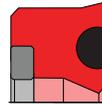
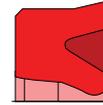
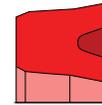
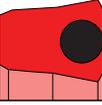
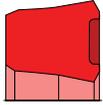
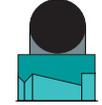
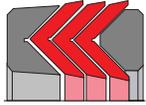
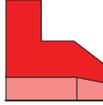
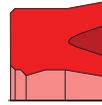
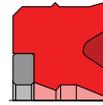
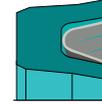
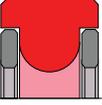
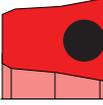
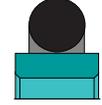
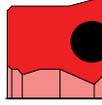
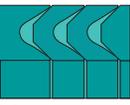
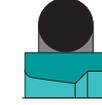
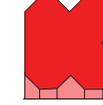
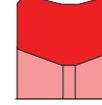
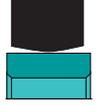
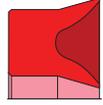
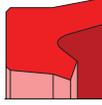
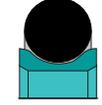
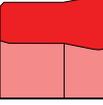
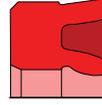
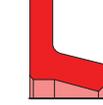
							
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DK117	DK118	DK119	DK120	DK122	DK123	DK124	DK125
							
DK126	DK127	DK138	DK139	DK140	DK141	DK142	DK205
							
DK216	DK222	DK238	DK143	DK144	DK145	DK199	

Wipers

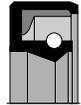
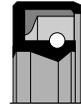
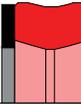
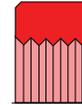
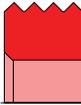
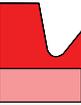
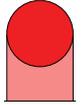
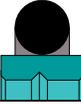
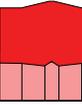
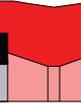
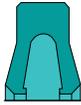
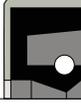
							
DA101	DA102	DA103	DA104 PN	DA105 PN	DA106 PN	DA107	DA108
							
DA109	DA113	DA114	DA115	DA116	DA117	DA118	DA211
							
DA212	DA213						



Rod Seals

								
DS101	DS102	DS102R	DS103	DS104	DS104R	DS105	DS106	
								
DS107	DS108	DS109	DS110 DS112 DS111		DS116	DS117	DS117R	DS119
								
DS120	DS121	DS124	DS125	DS126 DS128 DS127		DS129	DS130	DS131
								
DS138	DS139	DS141	DS142	DS199	DS205	DS216	DS238	

Lip Seals

							
DR101	DR102	DR103	DR104	DR105	DR106	DR107	DR108
							
DR109	DR110	DR111	DR112	DR113	DR115	DR116	DR117
							
DR118	DR119	DR201	DR202	DR203	DR204	DR205	DR206
							
DR207							



Precision Laser Engraving & Cutting



Identifying Your Parts

We are now offering a laser engraving service. Our engraving machine is capable of engraving part numbers, application description, your company name and even the highest quality logos into parts. The focused laser can etch legible text along a surface as small as 1/8" tall.

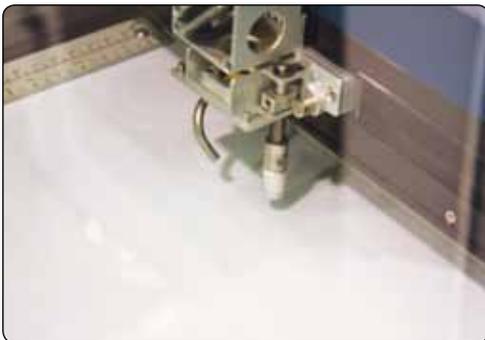
Our engraving capabilities extend to plastic, rubber and some types of metal.

Custom labeling helps you:

- Identify parts quicker with less effort
- Increase brand name exposure
- Lock in proprietary part ordering
- Make it easier for customers to reorder



Precision Laser Cutting



The laser-etching device is also capable of quickly and accurately cutting custom shapes, gaskets and spacers. With its cutting capabilities it makes an excellent addition to our rapid prototyping services.



Spliced and Vulcanized O-Rings

Rapid Custom O-Rings

Hi-Tech Seals stocks an assortment of O-ring cord in standard and square cut profiles. Our O-ring cord is available in cut lengths, splicing kits or through our in-house splice and vulcanizing service.

Vulcanized O-rings are an excellent quick replacement for any unique sized static O-ring.



Vulcanizing Capabilities

A minimum O-ring I.D. is required for vulcanizing O-rings. Please see the chart to the right for a guideline of popular sizes.

Cross- Section	Min. I.D.
0.139	4.000
0.210	4.500
0.275	4.500
0.375	5.500



Imperial (inches) Standard Cord														
0.063	0.094	0.103	0.125	0.139	0.188	0.210	0.250	0.275	0.312	0.375	0.437	0.500	0.562	0.625
Metric (mm) Standard Cord														
1.60	2.00	2.40	2.50	3.00	3.50	4.00	4.50	5.00	5.70	6.00	6.50	7.00	8.00	9.00
10.00	11.00	12.00	13.00											



Imperial (inches) Square Cord														
0.103	0.125	0.139	0.210	0.250	0.275	0.312	0.375	0.500						



Materials

Parts are machined in 85-95 durometer rubbers and hard plastics.

Acetal (POM)(Delrin®- DuPont™)

-40°C to +100°C

-40°F to +212°F

- It is used for valve seats, wear rings, spacer rings and is often used as a bearing material
- Acetal is a hard thermoplastic material, which exhibits excellent wear resistance, low water absorption, is easy to machine, and has a low coefficient of friction.

Aflas™ (Asahi Glass Co.) (TFE/P)

85 Durometer

-9°C to +232°C

+16°F to +450°F

- Good high temperature capability
- Resistant to strong acids and bases, amines, solvents and hot water
- Aflas™ is found in numerous applications in the oilfield industry
- Poor low temperature performance and low resilience

Ethylene Propylene (EPDM, EPR)

85 Durometer

-54°C to +150°C

-65°F to +302°F

- Excellent resistance to ozone, hot water, steam and aging
- Wide temperature range
- Commonly used with brake fluids and refrigerants
- Poor resistance to petroleum fluids and mineral oils

Fluorocarbon (FKM, FPM)(Viton® DuPont P.E.)

85 Durometer

-26°C to +204°C

-15°F to +400°F

- Excellent resistance to higher temperatures, petroleum oils, gasoline
- Wide range of chemical resistance
- Very good ozone, weather and aging resistance
- Poor compatibility with H₂S over 2%, amines, acetone, hot water and steam
- Poor low temperature characteristics although some compounds are suitable to -40°C/-40°F

Highly Saturated Nitrile (HSN, HNBR)

85 & 95 Durometer

-40°C to +160°C

-40°F to +320°F

- A Nitrile based compound with improved chemical resistance
- Wider temperature range than standard Nitrile
- High strength material that resists extrusion, abrasion and wear
- Water and steam resistance to +149°C/+300°F
- H₂S resistance up to 10%
- Commonly used with petroleum oils and CO₂
- Do not use with chlorinated hydrocarbons, polar solvents or strong acids
- Low temperature compounds available down to -54°C/-65°F

Hytrel® (TPC- ET)(DuPont™)

85 Durometer

-54°C to +149°C

-65°F to +300°F

- A thermoplastic elastomer able to handle high temperature's and hostile fluids
- Has excellent strength and toughness properties
- Demonstrates high resilience and flexibility which permits easier installation than PTFE materials
- Not suitable with water and phosphate fluids above +80°C/+176°F

Nitrile (NBR)

85 Durometer

-40°C to +120°C

-40°F to +248°F

- Presently the most widely used elastomer in the seal industry
- Provides an exceptional balance of good mechanical properties, wear properties and chemical resistance
- Resistant to most mineral oils and greases
- Do not use with glycol based brake fluids and strong acids
- Low temperature compounds to -54°C



PEEK (Polyetheretherketone) (Ketrion® - Quadrant)

-70°C to +260°C

-94°F to +500°F

- High strength
- Able to retain its mechanical properties at high temperatures
- Commonly used for anti-extrusion purposes
- Do not use with Hydrochloric, Nitric, or Sulphuric acids

Polyamide (PA)(Nylon - DuPont™)

-30°C to +93°C

-22°F to +200°F

- Major applications are wear rings, bushings and anti-extrusion rings
- A major limitation of polyamide is its high water absorption that leads to swelling of the material
- Nylon is available in many different grade options: FDA compliant, internally lubricated, heat stabilized

Polyamide-imide (PAI)(Torlon® - Quadrant)

-200°C to +260°C

-328°F to +500°F

- Polyamide-imide materials provide the overall highest performance capability of any melt processable thermoplastic.
- Torlon® offers good resistance to elevated temperatures as well as broad chemical resistance
- Capable of performing under severe stress conditions at continuous temperatures up to 260°C/500°F
- Has a low coefficient of thermal expansion and high creep resistance which contributes to dimensional stability

Polyurethane (AU, EU) (Lubrithane® - SKF Polyseal)

95 Durometer

-54°C to +105°C

-65°F to +220°F

- A thermoplastic elastomer with higher tensile strength, toughness and wear resistance
- A good combination of hardness and elasticity
- Good low temperature flexibility
- Can be used in high pressure hydraulic systems where parts are subject to wear

Polyphenylene Sulphide (PPS)

(Techtron® - Quadrant)

Up to +220°C

Up to +428°F

- It is used for backup rings, V-ring material in oilfield applications, plastic pistons, valve bodies and the housing of integral seals and gaskets
- A high temperature, high strength plastic with good chemical resistance. Although temperature and fluid resistance is not as comprehensive as PTFE, it has higher strength and is a useful economic alternative
- Used as a high temperature structural plastic for automotive components
- Fluid resistance can be limited by the filler so it is important to assess individual grades for actual compatibility

PTFE (Teflon® DuPont™)

-200°C to +250°C

-328°F to +482°F

- Has virtually universal chemical resistance
- Very low coefficient of friction
- Fillers such as bronze, moly, glass and carbon are commonly added to alter mechanical properties

Material information given is intended to serve as a general guideline only. Actual testing in the application environment is always recommended.

UHMW-PE (Tivar® - Quadrant)

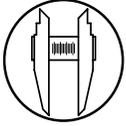
-250°C to +80°C

-418°F to +176°F

- Commonly used as wear rings, valve seats and in high speed sealing applications
- Good impact resistance
- Excellent abrasion resistance
- A low coefficient of friction
- A non-sticking and self-lubricating material with excellent mechanical properties
- Has been found to give superior performance compared to PTFE when used in water applications

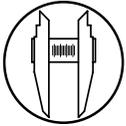
An extended material list is available on our website. Materials for custom parts are not limited to the list provided.





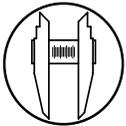
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Fax: 780.434.5866

Toll Free Phone: 1.800.661.6055
Toll Free Fax: 1.800.465.5866
Email: info@hitechseals.com



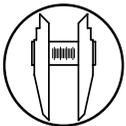
Bay #3, 5940 - 30 Street SE,
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Ph: 403.720.2856
Fax: 403.279.2662

Toll Free Phone: 1.800.830.7822
Toll Free Fax: 1.800.321.0862
Email: info@hitechseals.com



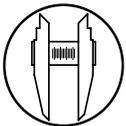
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Fax: 204.775.7954

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