



Administration Headquarters



50,000m² Manufacturing Plant and Logistics Center



SEAL MACHINING CENTER & SEMI-FINISHED MATERIALS

SEAL-N-C™ Machining Center



CE  Certified

Semi Finished Raw Materials



Rotary Seals



Hydraulic & Pneumatic Seals



Licensing Possibility Available For Special & Patented Designs



AIGI ENVIRONMENTAL INCORPORATED

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Seal Machining Center

Reason's Seal Machining System makes a reliable partner for the rapid production of high quality seals and sealing products.

Seals for hydraulic and pneumatic applications, as well as various other sealing products are available for use within a few minutes. This is particularly true for the cylinder repair industry. CNC machined seals offer many advantages over the mass produced standard model seals.

The Reason **SEAL-N-C™** Machining System provides users access to practically every seal profile in the fastest time, satisfying your customer's individual requirements in standard seals along with options for special dimensions and custom made designs from any material.



- **Version V4.0 V4.1 Standard Series:** Over 100 Profiles
- **Version V5.0 V5.1 REASON special designs:** Additional 10 profiles
- **Version V6.0 V6.1 PT series internationally patented designs:** Additional 24 profiles
- **Licensing possibility for special & patented profiles**

Complete REASON 320 SEAL-N-C™ Machining Center for Seals up to 320mm Diameter.

- Heavy duty rigid inclined bed structure with linear rolling guide-ways for greater precision and stability.
- 8 Position tool turret ensures high speed repeated positioning accuracy and rigidity.
- VDI 20 tool holders
- Basic set of cutting tools for seal production
- High performance chip cutter and extraction unit
- PC loaded with Reason SEAL-N-C™ software
- Quick fit raw material clamping system
- Siemens AC servo drive motor for low noise with high reliability operation.(Optional inverter motor)
- Siemens 828D control system



Max. Turning Dia.	Spindle Drive	Max. Spindle Speed	Weight	Dimensions H x L x W	Electrical Connection	Power Consumption
320mm	9kw	4500rpm	2,500kg	1.78m×2.34m×1.95m	380v - 50Hz	20kw



Complete REASON 600 SEAL-N-C™ Machining Center for Seals up to 600mm Diameter.

- Heavy duty rigid inclined bed structure with linear rolling guide-ways for greater precision and stability.
- 12 Position tool turret ensures high speed repeated positioning accuracy and rigidity.
- VDI 30 tool holders
- Basic set of cutting tools for seal production
- High performance chip cutter and extraction unit
- PC loaded with Reason SEAL-N-C™ software
- Quick fit raw material clamping system
- Siemens AC servo drive motor for low noise with high reliability operation.(Optional inverter motor)
- Siemens 828D control system



Max. Turning Dia.	Spindle Drive	Max. Spindle Speed	Weight	Dimensions H x L x W	Electrical Connection	Power Consumption
600mm	12kw	3500rpm	5,500kg	1.92m×2.61m×2.05m	380v - 50Hz	30kw





PU Semi-finished Materials

Product code: A101 (Green) / A102 (Red)

Polyurethane is widely accepted by all segments of the sealing industry as the longest lasting, most reliable, leak free seal material available today. Reason Technology Co. Ltd., utilizing an advanced formula and manufacturing processes, produces a semi-finished material with outstanding performance in all areas.

- **Extrusion Resistance: Excellent**
- **Coefficient of Friction: Excellent with built-in internal lubrication.**
- **Elastic Memory: Excellent**
- **Compression Set Resistance: Excellent**
- **Abrasion Resistance: Excellent**
- **Wear and Tear Resistance: Excellent**

Our thermoset polyurethane is compatible with most hydraulic fluids except synthetics. Exceptional performance in most hydraulic/pneumatic and slow rotary applications.



NBR Semi-finished Materials

Product code: A104

NITRILE RUBBER (NBR) is commonly considered the workhorse of the industrial and automotive rubber products industries. The unique balance of oil, chemical, heat and cold resistance allows it to work well in a wide variety of industrial applications. Using modern processing technology, Reason Technology Company provides customers with a highly cost effective solution in a semi-finished material.

- **Oil Resistance: Excellent**
- **Hydraulic fluids Resistance: Excellent.**
- **Water fuel Resistance: Excellent**
- **Gas Resistance: Excellent**
- **Abrasion Resistance: Excellent**
- **Compression set Resistance: Excellent**
- **High tensile Resistance: Excellent**

PTFE Semi-finished Materials

PTFE is a generic name used to describe sealing material polymer that is chemically inert and has temperature range capabilities far exceeding that of other elastomers.

As with any elastomer it is available in many formulations, durometers etc. It is also referred to as PTFE. PTFE has excellent chemical and temperature capabilities and outstanding weather resistance and resistance to ultraviolet radiation.

Excellent coefficient of friction characteristics and has applications as a lubricant.



Virgin PTFE

Superior fluid compatibility. Static or slow speed applications with low wear resistance. Works well in vacuum and low gas permeability applications.

PTFE, Glass Filled

Reason Technology, utilizing unique additive formula and manufacturing processes, has improved the traditional performance of PTFE to overcome problems with cold flow, expansion and contraction, thermal conductivity and short service life of hydraulic and pneumatic sealing material.

Glass filled PTFE has exceptional chemical resistance and is compatible with most hydraulic fluids.

Outstanding performance when used for hydraulic/pneumatic compression type rod and piston seals, bearing bands and rotary applications.



PTFE, Bronze Filled

Reason Technolog, utilizing unique additive formula and manufacturing processes, has produced a bronze filled PTFE with higher bearing and extrusion properties with improved wear rates. Good thermal conductivity allows for higher service velocities.

Bronze filled PTFE has limited chemical resistance in some acids and alkalis.

Best suited for higher pressure hydraulic applications.



PU Data Sheet

Thermoset Hydrolysis Resistant Polyurethane

Product Code: A101 (Green) / A102 (Red)

Properties	Value	Unit	Standard
Standard Colour	Green, Red		
Hardness	95 ± 2	Shore A	DIN
Hardness	48 ± 3	Shore D	DIN
Density	1.2 ± 0.1	g/cm ³	DIN
Modulus 100%	10 ~ 14	N/mm ²	DIN
Tear Strength	≥ 46	N/mm ²	DIN
Tensile Strength	≥ 48	N/mm ²	DIN
Elongation at Break	≥ 320	%	DIN
Compression Set 70°C/24hr	< 28	%	DIN
Compression Set 70°C/70hr	< 30	%	DIN
Minimum Temperature	-30	°C	
Maximum Temperature	+110	°C	

All stated results are from random tests on ongoing production and based on standard international tests with the intention of indicating general characteristics only, and cannot be transferred to a completed seal. We do not warrant the impeccable quality of the finished product.

NBR Data Sheet

Butadiene Acrylonitrile Rubber

Product Code: A104

Properties	Value	Unit	Standard
Standard Colour	Black		
Hardness	85 ± 5	Shore A	DIN
Density	1.3 ± 0.1	g/cm ³	DIN
Modulus 100%	11 - 13	N/mm ²	DIN
Tensile Strength	≥ 16	N/mm ²	DIN
Elongation at Break	≥ 150	%	DIN
Compression Set 70°C/22hr	< 10	%	DIN
Minimum Service Temperature	-30	°C	
Maximum Service Temperature	+100	°C	

All stated results are from random tests on ongoing production and based on standard international tests with the intention of indicating general characteristics only, and cannot be transferred to a completed seal. We do not warrant the impeccable quality of the finished product.

PTFE Data Sheet

Virgin PTFE

Product Code: A200

Properties	Value	Unit	Standard
Standard Colour	White		
Hardness	55 ± 3	Shore D	ASTM
Density	2.15 ± 0.1	g/cm ³	DIN
Tensile Strength	≥ 17	MPa	ASTM
Elongation at Break	≥ 230	%	ASTM
Minimum Service Temperature	-200	°C	
Maximum Service Temperature	+260	°C	

All stated results are from random tests on ongoing production and based on standard international tests with the intention of indicating general characteristics only, and cannot be transferred to a completed seal. We do not warrant the impeccable quality of the finished product.

PTFE Data Sheet

PTFE filled with 15% glass fibers, 5% MoS2 powder and 80% virgin PTFE

Product Code: A201

Properties	Value	Unit	Standard
Standard Colour	Grey		
Hardness	60 ± 3	Shore D	ASTM
Density	2.2 ± 0.1	g/cm ³	DIN
Tensile Strength	≥ 17	MPa	ASTM
Elongation at Break	≥ 230	%	ASTM
Minimum Service Temperature	-200	°C	
Maximum Service Temperature	+260	°C	

All stated results are from random tests on ongoing production and based on standard international tests with the intention of indicating general characteristics only, and cannot be transferred to a completed seal. We do not warrant the impeccable quality of the finished product.

PTFE Data Sheet

PTFE filled with 40% bronze and 60% virgin PTFE

Product Code: A205

Properties	Value	Unit	Standard
Standard Colour	Brown		
Hardness	65 ± 3	Shore D	ASTM
Density	3.1 ± 0.1	g/cm ³	DIN
Tensile Strength	≥ 20	MPa	ASTM
Elongation at Break	≥ 200	%	ASTM
Minimum Service Temperature	-200	°C	
Maximum Service Temperature	+260	°C	

All stated results are from random tests on ongoing production and based on standard international tests with the intention of indicating general characteristics only, and cannot be transferred to a completed seal. We do not warrant the impeccable quality of the finished product.

Semi-finished Materials Summary

Type	Code	Material	Temp. Range	Hardness	Compatibility	Properties	Usage
Elastomer	A101 / A102	Thermoset Polyurethane	-30-80°C	95 Shore A	Compatible with most hydraulic fluids except synthetics	Excellent wear and tear resistance with low compression set. Excellent extrusion resistance at high pressure.	Excellent performance in hydraulic, pneumatic and slow rotary applications.
	A104	Butadiene Acrylonitrile Rubber	-30-100°C	85 Shore A			
Fluoroplastic	A200	Virgin PTFE	-200-260°C	55 Shore D	Superior fluid compatibility	Works well in vacuum and low gas permeability applications.	Static or slow speed applications with low wear resistance.
	A201	Glass Filled PTFE	-200-260°C	60 Shore D	High PV values with excellent fluid compatibility	High wear, high pressure and high speed applications. Excellent in high viscosity fluids.	Composite seals with elastomer loading elements. Spring loaded seals, back up and guide rings.
	A205	Bronze Filled PTFE	-200-260°C	65 Shore D	Excellent fluid compatibility	Higher bearing and extrusion properties with improved wear rates. Good thermal conductivity allowing higher velocities.	Best suited for higher pressure hydraulic applications.

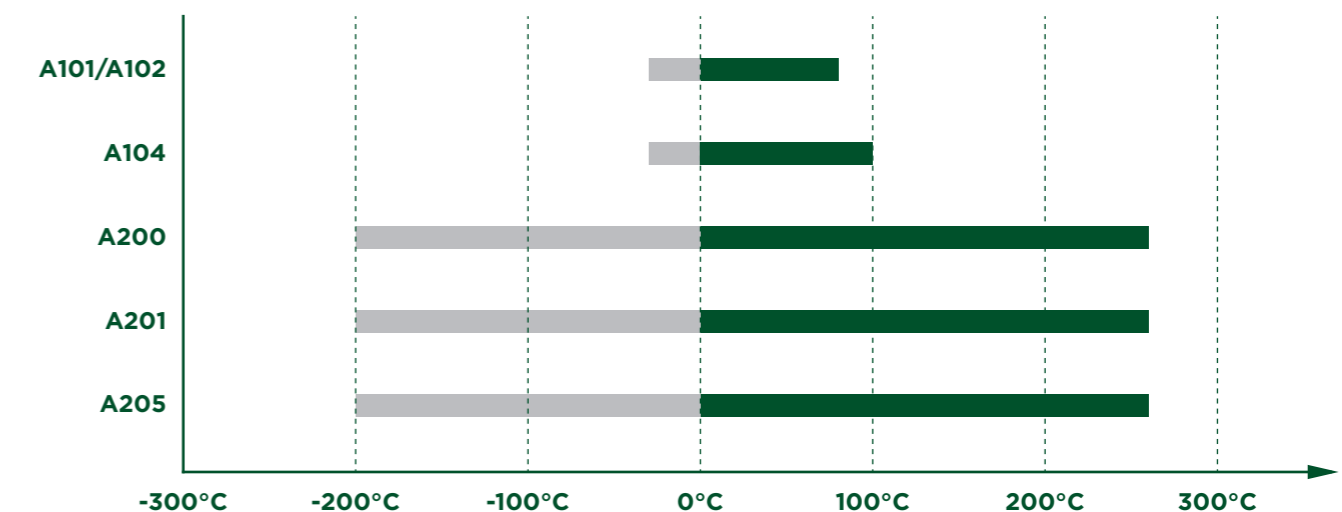
Material Chemical Resistance

Resistant = R Suitable = S Unsuited = U

Media \ Material	A101/A102 Thermoset Polyurethane	A104 Butadiene Acrylonitrile Rubber	A200 Virgin PTFE	A201 Glass Filled PTFE	A205 Bronze Filled PTFE
Temperature to 100°C	U	R	R	R	R
Temperature to 200°C	U	U	R	R	R
Water/Glycol	R	R	R	R	R
Brake Fluids	U	S	R	R	R
Diesel	R	R	R	R	R
Fuels	S	R	R	R	R
Mineral Oils	R	R	R	R	R
Synthetic Oils	U	S	R	R	R
Vegetable Oils	R	R	R	R	R
Ozone, oxygen	R	U	R	R	R
Steam to 150°C	U	U	R	R	R
Water to 40°C	R	R	R	R	R
Water to 90°C	U	R	R	R	R

The information above provides an overview of the most common fluids, seal materials and of their applicability. Actual working conditions such as temperature, may influence the applicability of the material and the fluid.

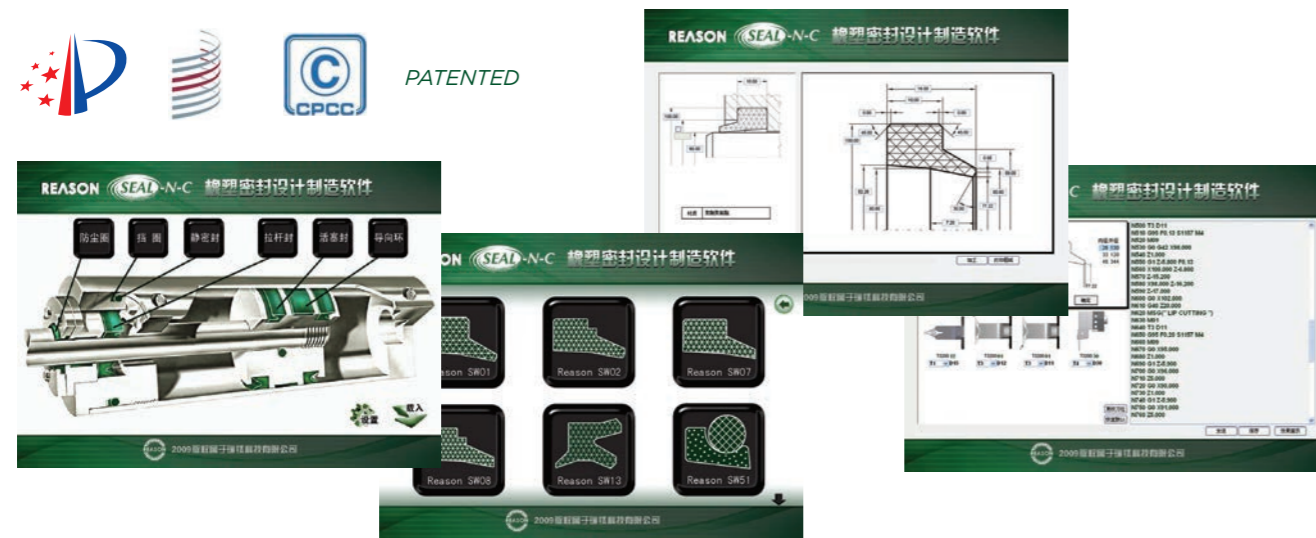
Temperature Range



The information above provides a general overview of the materials application temperature range. When using a material in a chemically aggressive fluid, these temperature ranges can dramatically change.

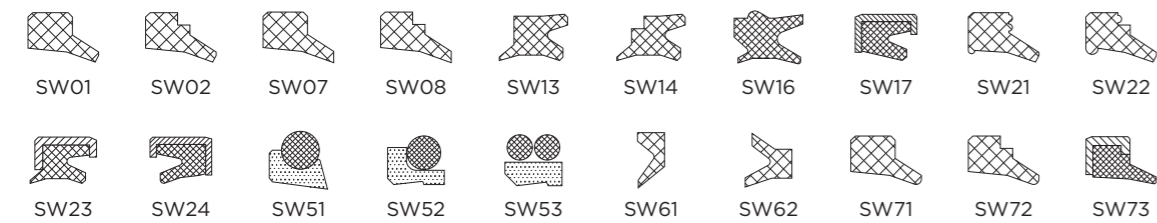
Seal-N-C Design & Machining System

SEAL-N-C Software

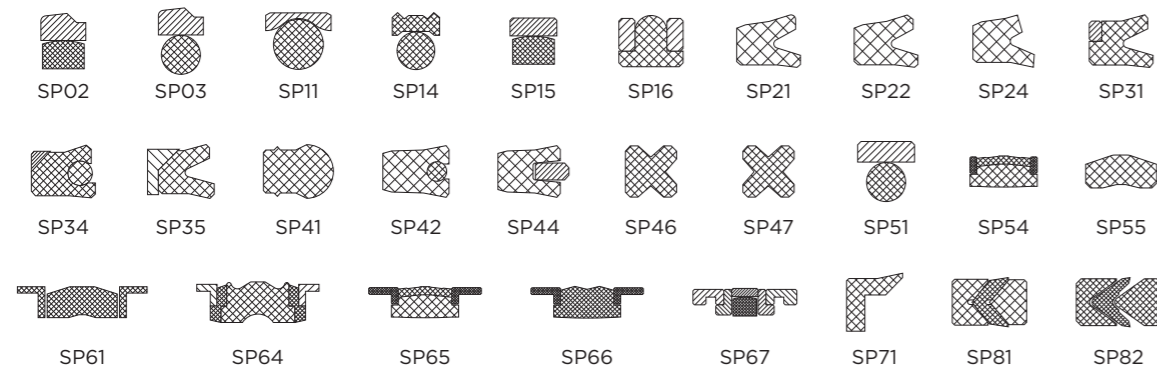


SEAL-N-C V4.0 Series

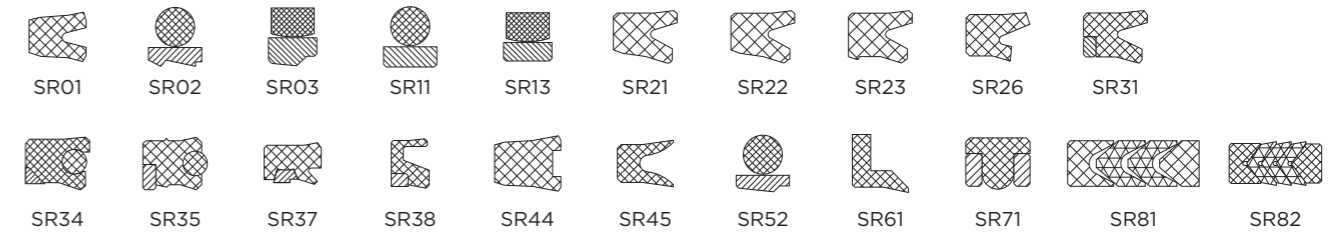
• V4.0 - Wipers



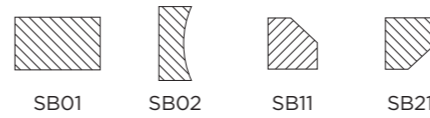
• V4.0 - Piston Seals



• V4.0 - Rod Seals



• V4.0 - Back-up Rings



• V4.0 - Statics Seals

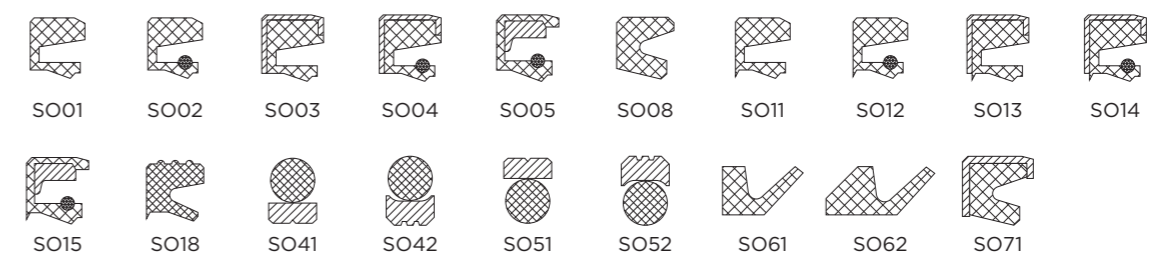


• V4.0 - Bearings Bands



SEAL-N-C V4.1 Series

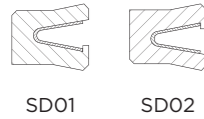
• V4.1 - Oil Seals



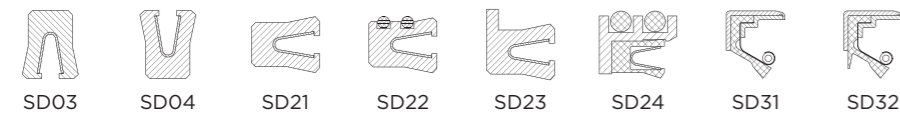
SEAL-N-C V5.0 V5.1 Series

※ An authorization Agreement is needed before manufacturing patented seals.

• V5.0



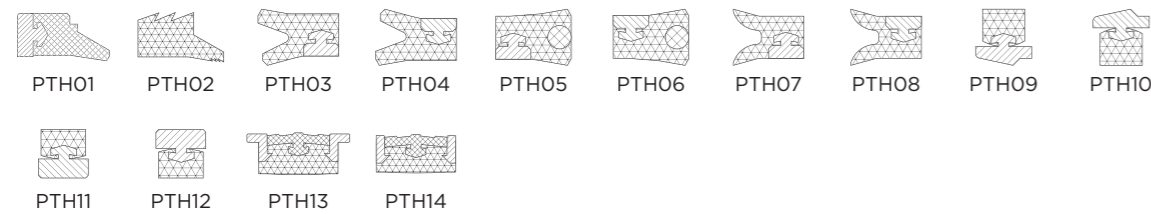
• V5.1



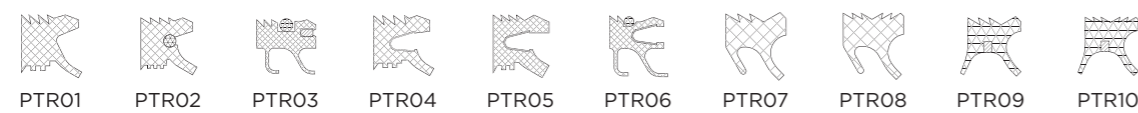
SEAL-N-C V6.0 V6.1 Series

※ All the seals are international patented, an agreement is needed before manufacturing.

• V6.0 Arrowhook Locked hydraulic / Pneumatic seal



• V6.1 Live-Loading bevel tooth rotary seal



Related AIGI Innovative Fluid Sealing Products

• **International Patented Arrowhook Seals**



Duo-lock @ 55" & 05"



Seal for Both Axial & Vertical Direction

• **Patented Castle™ Packing System**



• **International Patented Fishbone® Gaskets**

